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Blood Test for "Non-Aryanism"

The first use in France of a blood test to determine a "non-Aryan race" was reported by the German news agency recently. The test, described as a biological examination, was carried out by a professor of Sorbonne University in Paris, on a naturalized French citizen to prove his Jewish origin.

Some time ago a captured German Army physician was quoted by Russian sources as saying that "senseless" insistence on "Aryan" blood in transfusions for wounded soldiers had complicated German surgical care on the Russian front. "Senseless race theories", he was quoted as saying, cause both officers and soldiers to insist on getting "pure" blood, and as a result the transfusion supply is becoming more and more scarce.

The *New York Times* recently requested the Medical Information Bureau of the New York Academy of Medicine and other authoritative sources to comment on the alleged German claim that a "biological test" had been used in Nazi-dominated France to determine whether an individual was "non-Aryan." The answer was that it was "extremely unlikely that such a test could ever be devised."

In the light of present knowledge, the Academy stated, the claim sounds preposterous, particularly since the term "Aryan" is a propagandist and political concept rather than a biological one. Dr. Arthur F. Coca, founder and first director of the Blood Transfusion Betterment Association, stated that he considered it most unlikely that a test to distinguish a single individual of a particular race could ever be devised. While the relative proportions of the four principal blood groups (O, A, B and AB), he pointed out, may vary in any given area of the world, representatives of each of the four are found all over the world, among all races of men, regardless of type or color, so that it is impossible to determine by a blood examination from what "race" or nation an individual comes. These blood groups are found even among the higher apes.

Among the peoples of Europe, and in Asia as far as India, Dr. Coca stated, the proportions of the four blood groups run as follows: O, forty-five percent; A, forty to forty-two percent; B, ten percent, and AB, three to five percent. In China, the proportions are: O, thirty percent; A, thirty percent; B, thirty percent; and AB, ten percent. Thus, statistically the blood group A is four times more frequent in Europe and in parts of Asia than it is in China, yet the Hawaiians have a higher percentage of group A than any other people. There is also a high percentage of the blood group A among some of the black pigmy tribes in the Philippines.

The use of Negro blood for blood banks has produced related problems. However numerous chemical and serological investigations conducted on a scientific basis have yielded no evidence that the blood of one race can be distinguished from that of another.

Climate and World War

Forces beyond human control continue their irresistible course today just as they did through past centuries. In his interesting and stimulating book, *Climate Makes the Man* (Harper & Brothers, New York), Clarence A. Mills, professor of experimental medicine at the University of Cincinnati and author of several other books on man and weather, gives us a short survey of the actual influence of weather and climatic conditions on the course of the war. It is well known that even under normal conditions people need higher calory foods during extremely cold weather. American troops in Newfoundland, Iceland, and increasingly important Alaskan bases require up to ten thousand calories a day, as contrasted to the average sedentary worker's standard of two thousand five hundred calories.

Supplying food to tropical armies presents other peculiar problems of immediate importance. Although soldiers eat less in tropical heat, they need food much richer in the B vitamins to meet their higher requirement. A crude liver extract or brewer's yeast is probably the most practical and concentrated source for daily use. On the other hand, tropical residents tolerate thyroid extract and insulin poorly. Diabetic patients in the severe summer heat of Peking went into fatal insulin shock from doses considered insignificantly small in the northern United States.

Never before in all history have large masses of men been shifted so abruptly and in such numbers from one climatic extreme to another as today. Our own American troops have been scattered from the polar cold of

Iceland to Philippine heat. Fortunately, most of the troops going by ocean convoy to tropical stations are subjected to several weeks of mild tropical warmth on shipboard. German troops destined for African service were said to have been given daily exercise in heated rooms for weeks or months before leaving for the front.

In returning the sick and wounded home from tropical fighting fronts, careful consideration must be given to climatic effects. They face severe respiratory disease hazards if brought directly into the cold and storms of a northern winter; the non-stormy Southwest offers the ideal climate for their recuperation. At the close of the war, men who will have spent many months fighting in tropical heat should be demobilized with care. Great distress and a widespread epidemic of respiratory disease might result if they were returned *en masse* to their northern homes during the colder seasons of the year.

Recently there occurred one of the most impressive demonstrations of the part climate is playing in the fighting melee of today. Mills says that the eastward onrush of Rommel's armored force across northern Libya and Egypt—coming at a time of year when it was maintained that severe desert heat would render tank warfare impossible—is now reported to have been made possible by the use of air-cooled tanks. The Allies had considered such air-conditioning but had discarded it as not feasible because of the tremendous weight of the cooling equipment involved. Mills emphasizes that American science will have to join closely with industry and take a direct part in carrying out the war effort of the United Nations.

Books by Doctors

Books by members of the medical profession are numerous nowadays. Dr. Halliday Sutherland who excels in writing readable, interesting and in many ways instructive descriptions of his traveling here and there, assisted by a vivid imagination, has recently published a book in which he sets down some of his experiences in touring Australia, where he meets and hobnobs with all sorts and conditions of men, including financial magnates, bishops and so on, and follows the nightly rambles of the police. Although a medical man, he touches scarcely at all on matters of healing or health. He is impressed by the indifference with which big deals are regarded in the antipodes. Their way of conducting business involving immense sums of money is after the American fashion, and property worth a million pounds or so is sold with no more fuss than attends lesser men, that is, from the financial outlook, buying a packet of cigarettes. He notes too with some surprise the sobriety of Australian speech. The book is well put together by this versatile doctor and is well worth reading. It is entitled *Southward Journey.*

Dr. George Sava brings out *A Tale of Ten Cities,* and in it draws upon his memory with as great effect as most novelists draw from their imagination. He is nothing if not exuberant in his record of what he saw and heard in ten European cities before the war. In his somewhat slapdash but eminently alive picture of the great capitals of Europe, he gossips and gossips amusingly of art, medicine, politics and travel but finds little constructive achievement.

A Yankee Doctor in Paradise, by S. M. Lambert, is chiefly given over to medical matters where, in the South Seas under the Rockefeller Foundation, he helped to banish hookworm. His book is more worth while than the other books mentioned, as there was constructive achievement in the lands of the South Sea, which was sadly lacking in Europe. The book really imparts knowledge about head hunters, witchcraft and mosquitoes, ritual cursing and the worship, if it can be so called, of the natives. The book abounds in information about a part of the world which has been much in the news recently. The author is an admirer of Robert Louis Stevenson and his works, and his style of writing resembles in some ways that of the great Edinburgh writer.

Health in Britain

In spite of war conditions, the health of the British population is, on the whole, surprisingly good. According to Mr. Ernest Brown, British Minister of Health, who spoke in Parliament on the subject a few weeks ago, after one thousand days of war the health of the people is in many respects better than in peacetime. The incidence of infectious disease has been below the average, which is remarkable when taking into account the manner in which living conditions have been dislocated, the massing of people in shelters and billets, and the rationing difficulties. Diphtheria caused 2,600 deaths in 1941 and an appeal is being made to parents to have their children immunized. Scarlet fever has decreased greatly and the death rate from typhoid fever has been negligible. The black spot has been the increase of tuberculosis, due to a great extent to blackouts and overcrowding. Doctors and nurses are scarce because so many have been called up for military service and as the government cannot ration doctors' visits, it is up to the community to get along with less medical attendance.

The shortage of nurses is serious. Women suitable for nursing can earn more money in factories, without the necessity for training and without the restrictions which many feel are the bugbears of nursing and are freer in every way. Steps must be taken to better the nursing situation, as skillful nursing is in many respects as important as good medical and surgical aid. It is a problem which must be solved.

Papers and Addresses

LOCAL TREATMENT OF PRURITUS ANI

CHARLES J. DRUECK
Chicago, Ill.

The unhappy victim of genital or anal pruritus, be it functional or organic in nature, presents himself at your office because his complaints have seriously hampered his accustomed digestive, evacuatory, and mental tranquility. In many instances the discovery of the actual cause of the itching may not be immediately possible. Time is required for endocrine, allergy and dietary tests, urine and feces examination, and perhaps fluoroscopy. Repeated examinations are often necessary accurately to diagnose the offending pathology or functional derangement. Pending our complete diagnosis, and such time as treatment can be intelligently directed to the cause of the trouble, the patient requires symptomatic relief at least. In fact, from the patient's point of view, relief from his complaints is the only matter of immediate consequence and he will seek the physician who will see that this relief is satisfactorily obtained. The remedies are legion which singly and in combination have been proposed and employed for alleviating the itching.

The local therapy has only a palliative effect in any pruritic condition and must therefore be secondary to the correction of the underlying cause of the disorder. It is directly toward the dermatitis and is similar in both primary and secondary pruritus. It should be adequate in measure, and be promptly instituted for symptomatic relief. The trauma, incident to the frequent manipulation, rubbing and scratching, produces edema, erythema, hypersecretion, and abrasions of the parts. They each demand their own attention.

Dangers of overtreatment.—There is a tendency to overtreat dermatoses and to employ strong applications when mild ones are indicated, often with disastrous results. The use of strong chemicals always causes aggravation of the dermatitis. It should be remembered also that certain individuals are allergic or hypersensitive to certain irritants and a generalized erythroderma and exfoliative dermatitis may result from ill advised therapy. Therefore, only mild applications should be used until the physician has become well acquainted with the reactivity of the patient's skin. Cognizance should be taken of the patient's comments, and any application which he finds irritating should be discontinued immediately.

Restraint during sleep.—After the itching has persisted for a long time, the habit of scratching becomes so fixed it must be combatted by strict measures. It is sometimes necessary to restrain scratching during sleep by having the patient's hands tied or by having him wear ordinary workman's gloves. The fingernails should be filed down to prevent damage to the skin if the patient should scratch.

Baths.—The application of water to the skin produces both physical and chemical effects. The mere contact of water with the skin, especially if accompanied by motion, produces a certain amount of stimulation, but the chief physical action of water upon the skin is thermal. Either cold or hot water applied to the skin causes temporary contraction of the capillaries, which is subsequently followed by their dilatation. The application of tepid water causes an immediate dilatation of the cutaneous capillaries. The action, therefore, of water of any temperature which appreciably varies from the temperature of the skin produces either primarily or secondarily a transitory hyperemia and is stimulating. The chemical effect of water upon the skin is that of a detergent. It dissolves dirt and excretions upon the skin, and causes a certain amount of maceration of the horny epidermis. Where the horny layer is unbroken this effect upon the skin is minimal but there is even then some absorption of water by the horny cells and a certain amount of maceration. That this is not greater is due to the fats which infiltrate the horny layer, and when solvents of the fats, such as soaps and the alkalis, are dissolved in the water this effect is greatly increased. Where the horny layer is absent water is taken up freely by the deeper cells of the epidermis, causing them to swell, some of them to the point of rupture, and upon such surfaces water is an irritant. It may be readily seen from the foregoing that the application of water to the skin in dermatoses is not a matter of indifference. Too frequent bathing, especially with soap, by depriving the skin of its fatty protection increases its vulnerability, while the hyperemia which follows bathing tends to exaggerate any inflammatory process which may exist.

Bath temperature.—Baths for the pruritic patient should be tepid—a little below the body temperature. I recommend 80° to 95° F. The cool bath of a temperature below that (65° to 80° F.) is exciting to the nervous system and though stimulating as a physical measure increases the itching after bathing. The warm bath above 95° (95° to 105° F.) increases the skin secretions and also the itching and is therefore contraindicated. A tepid bath of ten to fifteen minutes tends to make the skin firmer and to improve its texture, but extended beyond that the bath becomes depressing.

Colloid baths.—The use of soap and water in bathing and cleansing the parts is sometimes irritating to the itchy skin and must be curtailed or discontinued and a colloid bath substituted which is mildly antipruritic in effect. Bran, oatmeal, cornstarch or linseed may be used for this purpose. It is made as follows. A gruel is made by boiling one cupful of oatmeal, or one of the other glutinous materials, in one quart of water for fifteen minutes. Water is added continually so that the volume of the mixture is maintained, and the boiling is continued until the gruel is of moderately thick con-

sistency. It is then set aside to cool. The cooled gruel is poured into a large muslin bag, tied securely and the bag swished around in the tubful of water until nothing but husks remain in the bag. The bath water should become whitish and opalescent. The patient should remain in this solution for twenty minutes, and then dry himself by patting (not rubbing) with a towel. If soap must be used on the hands, face or feet only a superfatted soap is permitted.

Personal cleanliness is important and must be carried out with minute attention to details. To avoid irritation the softest type of toilet tissue and a minimal amount of rubbing should be used, and the cleansing of the anal region should be completed with small pledgets of cotton soaked in mineral oil. During the day men should wear a suspensory and women a chafee of the softest material to keep the genital, perineal and groin skin dry and cool.

Soothing applications.—Cooling the skin, whether or not visible congestion is present, is one of the most efficacious and prompt means of obtaining relief. After each cleansing and bathing ample time should be allowed for thorough cooling and drying of the skin before any medicaments are applied. A very bland dusting powder consists of

Boric acid talcum.....aa. 6 parts
Zinc stearate.....qs. 60 parts

Signa: To be dusted on every six hours.

The periodic use of this soothing powder lessens the itch and the urge to scratch. It gives the individual something to do besides scratching. A frank explanation at this time of the evil effect of rubbing and scratching helps him to restrain himself. Calomel powder is also mildly antipruritic.

If folliculitis or acne develops, as is recognized by indolent inflammatory papules, it should be promptly treated with five percent sulfathiazole ointment.

Where there is weeping or maceration of the skin, calamine liniment is a most satisfactory antipruritic local application. It is made as follows:

Tragacanth pulv.	1.00
Phenol	
Glycerin	.16
Calamine	
Zinci ox.	8.00
Ol. olivae	30.00
Ol. bergamot	.5
Aqua. calcis	120.00

Signa: The sharp edge of a wedge of cotton is soaked with the liniment and inserted between the nates, for the double purpose of applying a mildly drying antipruritic medicament and of keeping the skin surfaces apart to avoid further maceration.

A warning should be given against the prolonged use of lotions, such as the calamine lotions, because of their markedly drying effect, which may aggravate the itching. It is therefore recommended to use the calamine lotion during the day and the following menthol-phenol paste at night.

Menthol	0.15
Phenol	.6
Ac. boric	3.
Zinc oxide	15.
Petrolatum	45.
Ung. aqua rosae qs. ad	120.

Signa: A thin wisp of cotton gauze is wiped with the ointment and placed in the gluteal cleft.

Ineffectual procedures.—Roentgen therapy, the injection of the nerves with alcohol, section of the nerves and excision of the pruritic area have all been used but are in no way curative, and because of their inherent dangers and limitations are taboo.

58 EAST WASHINGTON STREET

NONPENETRATING NONFATAL TRAUMATIC HEART DISEASE*

GEORGE SCHWARTZ

New York, N. Y.

(*Continued from page* 459)

CASE VII.—This case concerns a fifty-five year old white man, who, while traveling on a motor bus from New York to Vermont, was jostled about and as a result of which it was claimed that he had suffered subsequent heart disease. This illness was diagnosed en route by a physician as a state of acute coronary closure. One evening the claimant boarded a bus in New York and remained in his seat until he reached Albany. During the rest period he entered a restaurant and had some refreshments. On returning to the bus he found no seats available, was compelled to stand, and argued vehemently with both the bus driver and other passengers. At Saratoga he experienced faintness and dizziness and insisted upon lying down in a hotel room. One and one half hours later he was summoned down into another bus and occupied the entire rear seat, falling asleep so soundly that he did not awaken until he arrived at Burlington. He was then informed that all passengers would be compelled to await the arrival of another bus to continue their journey. The claimant decided to forego this bus and registered in a hotel, going to sleep and awakening in the late afternoon, complaining of pains in his chest. He felt that he could not continue, and a physician was summoned who suggested that the patient take a taxi to his office. A brief examination sufficed to suggest a diagnosis of acute coronary closure and the patient was immediately hospitalized. No pertinent laboratory examinations were performed upon the patient and he signed his own release within eight days, and went home. Some sixty-six days later, the claimant supposedly visited a physician for the first time since his eight days of hospitalization. At this time he was first subjected to both a fluoroscopic and an electrocardiographic examination, whereupon he was treated in a general fashion, without any specific allusion to coronary artery disease.

It is argued that the electrocardiogram has been subjected to much abuse in heart disease, but its findings

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are absolutely pathognomonic in coronary artery disease. Clinical observation and hurried examinations emphatically cannot conclude the diagnosis of acute coronary artery disease. Therefore it is common practice to insist upon electrocardiography within the first few hours of a suspected closure, and each fairly modern institution or each physician exhibiting a more than passing interest in heart disease is equipped with such apparatus. Again, the prognostic severity of such a disease is such as to be markedly accentuated in the type of activity described by the claimant. Absolute bed rest under opiates is the rule of procedure for at least two weeks, thereafter an additional four to six weeks of absolute bed rest is demanded; and no privileges such as bathroom, etc., are permitted.

However, in this instance, the patient remained only eight days at the hospital and then subjected himself to the tremendous hazards of a trip home to New York from Burlington. It was judged inconceivable to rational judgment that a heart stigmatized with the diagnosis of acute coronary closure could withstand such terrific additional hazards as were thrust upon the heart of this claimant.

It was further argued that thereafter, for approximately sixty-six days, no medical attention was deemed necessary, none was sought and none was administered. When medical attentions did materialize, the treatment prescribed was such that it becomes an intellectual necessity to state that the alleged illness at the moment was but mild.

Further, it remained inconceivable that an acute coronary closure of some eight or nine days' duration could survive the mental and physical activities enjoyed by the claimant upon his return home, and for the subsequent period prior to which he was advised to modify his methods of seeking a livelihood.

Further, it was perfectly possible and reasonable to assume that the one and only graphic record obtained in some eight or nine months, actually some sixty-six days following the alleged closure, may indicate coronary artery disease of an acute or chronic nature, but the sequence of events, the history, the activities all negative a deduction of the onset at the period claimed. Logically and from experience—some eighty-three published cases over a two year period in one hospital alone—compel the statement that the patient did not suffer the alleged coronary closure at the time stated nor at a reasonable time thereafter, regardless of that which may have occurred at a later date.

It was further argued that the rather interesting problem concerning the relationship between standing in a bus and being "shoved around" on the basis of common knowledge of the great numbers who stand in buses, trains, street cars, etc., and who suffer equal if not greater discomfort than that suffered by the claimant, an infinitesimally small number collapse because of an acute coronary closure, and those who do, have basic heart disease and suffer some of its manifestations preceding the definite episode of collapse. This basic disease, if present, persists and if the resultant illness does not cause an exitus, the organic disease remains in evidence and continues to progress as the years go on, since this disease by the very nature of life is one of progression.

Contrarily, it was stated that the normal heart successfully withstands even those rigors associated with the kind of injury in question, as well as those activities described during the period of hospitalization and the sixty-six day period subsequent to that hospitalization. It must be stressed that such closures occur in hearts previously afflicted with organic disease, except in isolated instances in the young where disease may be demonstrated only at the postmortem table, and it was stated that the claimant presented no discernible evidence of heart disease; an extreme rarity indeed if the alleged condition had been present for so short a period as a year or so. Again, to assume that the alleged standing and shoving resulted in an acute closure, definite evidence as to history, course of events, graphic and laboratory evidence, all must be presented—which emphatically they were not—the evidence of one physician's observation and one graph some sixty-six days later notwithstanding.

It was argued that no causal relationship existed, particularly since there was no factual evidence of heart disease. No financial recovery was allowed the claimant.

Case VIII.—A report of this case, which concerns a twenty-nine year old white man, was published in May, 1940 (33). There was no evidence of any cardiac involvement as evidenced by frequent examinations in high school, college, insurance examinations and in examinations prior to athletic events and to indulging in athletics at a Y.M.C.A. A careful investigation of the personal and family history revealed a dearth of signs and symptoms referable to possible or potential heart disease. While engaged in the strenuous exercise of throwing a heavy medicine ball around in a gymnasium, the claimant was seized with a sudden sharp, piercing, substernal pain, which radiated upwards to both shoulders and down the left arm. He paused for a few moments, attempted to throw the ball again, and when seized with a similar pain, which he attributed to muscular strain, he ceased his activities and about one and one half hours later went home to retire, perspiring profusely. After a restful night, the patient arose to continue his business activities. While lifting a rather heavy package, he was stricken with an increasingly sharp, severe, pain over the entire chest wall, which radiated to both arms and forearms. The claimant perspired profusely, regurgitated his meal, and his face became cold and clammy. He was immediately hospitalized. All characteristic associated findings of an acute coronary closure were found, including blood picture, sedimentation rates, temperature curves, electrocardiographic evidence, gallop rhythm, etc. The patient was treated in the conventional, conservative manner and made an uneventful recovery. Here then was a case in which all evidence was positive and causal relationship was unquestioned.

Case IX.—This case involves a middle-aged white man who, on leaving the elevator of a business building at about 8 a.m., stumbled and sustained a glancing blow to the left side of his head and left shoulder. Evidently little if any attention was focussed upon this injury, for the claimant continued to enter into his place of business and engaged in his normal business activity. He likewise left the building as usual with some of his coworkers for luncheon. It was stated that he did not finish his customary luncheon but no emphasis was placed upon this feature by the claimant at the time. He returned to his labors, and after complet-

ing the day went home in the subway as usual, conversing, etc. He died suddenly in the subway. It was claimed that the glancing blow upon his head, sustained in the morning, caused a cerebral vascular accident and was the immediate cause of his sudden death. Statistics were utilized by the medical examiner, who stated that less than one percent of sudden death without premonitory signs or symptoms were caused by cerebral accidents, and the majority of sudden deaths were caused by coronary accidents. It was argued that expanding lesions within the cranium would of necessity demonstrate progressive signs and symptoms, whereas these often were absent in acute coronary disease. As no apparent causal relationship was present, the claim of sudden death as a result of the glancing blow to the head was disallowed and no award was recommended.

CASE X.—This case involves a fifty-eight year old white man, a tailor, who had been working at the same position for the same employer for many years. He was constant in his attendance at work, rarely losing a day because of illness. His home environment was good, there were no unusual circumstances, and there appeared to be no monetary or marital difficulties. While at work one day, his iron slipped, and the sudden exertion of bending and lifting it from the floor resulted in a peculiar feeling within the thoracic cage. He suddenly felt extremely short of breath and was conscious of his heart action which he described as being an irregular thumping. Physical and laboratory examinations disclosed an arteriosclerotic person who was afflicted with the arrhythmia of auricular fibrillation. It was concluded that despite the evident arteriosclerosis, unusual exertion was responsible for the creation of an abnormal rhythm resulting in cardiac distress and failure. In this regard the insurance carrier admitted a causal relationship and the patient was granted compensation.

Summary

As far as ascertained, no accurate information is available as to the dissemination of the effects of trauma throughout the thoracic cage and upon the heart itself. Contradictory viewpoints are expressed by a host of investigators as to the vulnerability of the heart to external noncrushing and nonpenetrating trauma—cardiac injury—though admittedly possible in both the normal and previously diseased heart. In this regard a definite series of criteria are offered for a complete and accurate evaluation for both actual myocardial involvement in any of its manifestations and for causal relationship between the alleged injury and the probable heart involvement. Subjective and objective manifestations are discussed with a view towards further evaluating their relationship with probable myocardial involvement. Cases of the author's practice are presented and discussed demonstrating all thoughts previously expressed, including those of malingering and psychoneurotic personalities.

Conclusions

1. A diagnosis of traumatic heart disease must conform with definitely established criteria.

2. All-inclusive negative laboratory evidence precludes the probability of traumatic heart disease.

3. Trauma may accentuate any type of preexisting cardiac disease, such conclusion depending upon the presenting evidence.

4. Trauma may precipitate attacks of congestive failure in a patient with a delicately balanced circulatory mechanism.

5. Trauma or undue stress may precipitate an arrhythmia.

6. Trauma or strain cannot produce coronary disease which in reality is atherosclerosis in about ninety-nine percent of the cases.

7. Physical or mental strain, even over a period of years, is not the cause of coronary artery disease.

8. Angina pectoris is not synonymous with coronary disease, and very often is not evidence of myocardial disease.

9. Trauma or severe strain occasionally precipitates thrombosis in a coronary artery, though the vast number of cases of thrombosis occur while the patient is at rest or during sleep when the slowing of the blood stream plays its part.

10. Trauma, very rarely, can cause coronary occlusion due to embolism when previous endocarditis is present.

11. Trauma of a moderate degree does not impair or injure the normal heart; the heart is not vulnerable to ordinary violence.

12. Trauma sufficient to injure the normal or diseased heart will manifest itself in the laboratory.

13. Trauma may initiate in a patient of the proper pattern, a train of symptoms of a psychoneurotic nature, resulting in a perplexing traumatic neurosis. This is not true of well orientated normal people.

14. Pain, dyspnea and palpitation are not synonymous with heart disease. This is equally applicable to 'heart murmurs'.

15. Trauma, of even more than moderate degree, does not cause dilatation of the aorta.

16. In medicolegal situations, causal relationship must be definitely established.

17. The diagnosis of traumatic heart disease, finally, is dependent upon accurate, impersonal, unemotional and reasonable evaluation of the entire data as presented.

The writer desires to express his appreciation to Dr. Harold Kittenplan for reviewing a goodly portion of the literature as presented with the bibliography.

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THE SIGNIFICANCE OF THE PLASTIC BISEXUALITY OF MAN FOR THE MEDICAL AND SOCIAL SCIENCES*

EDWARD J. KEMPF

New York, N. Y.

It is well known that civilization is largely the product of that part of man's energies that has been diverted from easy, direct, promiscuous sexual use, through more or less repression, towards indirect, sublimated ways of working for more highly developed and more completely attractive sexual objectives and reproduction.

There is a decisive difference between the old and the new comprehension of the meaning of sex which is having revolutionary medical, educational and social effects. The old civilization was dominated by a narrow genital idea of sex which developed naturally out of lack of knowledge of its fundamental factors and the egotistical prejudices of dominant males. This culture has purblindly maintained that all normal men and boys are one hundred percent male and that all normal women and girls are one hundred percent female and the vestigial organs of the opposite sex are inactive or have inconsequential influence upon behavior.

The new psychobiological comprehension of sex, developing through experimental biological investigations of sex behavior in all forms of life, observations of child and wild life, personality analyses, and endocrine surgical eliminations and substitutions, is that sperm, ova, the gonads, every cell in the body, the body as a whole, and the personality, are bisexual.

Before we discuss the medical and social implications of bisexuality in man I will briefly review the more important steps in its phylogeny and ontogeny.

Experimental investigation of the conjugating behavior of unicellular animals has shown that conjugation is not promiscuous or indifferent in choice. It is determined by the metabolic constitution and needs of the cell for restoring internal equilibration, after having used up more of its anabolic or catabolic properties in the processes of reproduction and in carrying on life against special environmental conditions which suppress or accelerate anabolism or catabolism. Its mate for conjugation seems to be chemically selected in a manner similar to its selection of special nutritional substances, and the two processes are fundamentally one and inseparable. Similar selective chemical processes probably govern the nutrition and fertilization of gametes. Autogenous elimination of unfit variations for conjugation, of the bipolar anabolic-catabolic mechanism, leaves the strong anabolic-weak catabolic type conjugating with a weak anabolic-strong catabolic type. We have the right to regard these as being respectively female and male mechanisms, since ova and sperm, which are also unicellular, have these essential characteristic differences.

The evidence of natural and experimental parthenogenesis, which has included the substitution of the nucleus of sperm for the ovum, and of crossed inbreeding in low and high forms of plants and animals, can only be adequately explained by the conclusions that ova and sperm are bisexual in their chromosomal and cytoplasmic constitutions. Mammalian ova and one-half of the sperm are similar in chromosomal equipment, and the dominant sex of the zygote is determined by the ratio of male and female genic factors brought together upon fusion of the two gametes. The male or Y sperm, carrying less female genes, weights the bisexual complement on the male side.

All zygotes are bisexual and normally they carry a greater ratio of genic determinants of one sex over the other in most Metazoa. Such ratios vary within each species from near equality to slight to great excess of one sex over the other. This produces every grade of bisexual gonadal development, ranging from infertile and less viable super-male to normal or fertile male to infertile intersexual to normal or fertile female to infertile, less viable super-female. Evidence that such bisexual ratios also exist in the human zygote is found in the geneologies of human families where records show that such sexual anomalies are repeated in many generations. In the two normal bisexual ranges in each species is found every degree of fertility, which is reduced as supersexuality or intersexuality is approached. The genic determination is fixed or unchangeable and transmissible, but its effect upon the growth and sex differentiation of the gonads and organism and personality are modifiable even to extensive reversals by opposite ratios of sex hormones in all vertebrates, and

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also by the degree of environmental temperature in cold blooded animals.

The degree of genic sex dominance in the zygote determines the degree of sex dominance in the growth of the gonads. Genic determination of the degree of growth of gonadal and other organ tissues is alike in principle. The same complements of genes are found in all primordial tissues. Cytoplasmic factors and intraorganismic position effects contribute to the differentiation.

In higher vertebrates a dominantly male zygote determines the stronger growth of the gonadal medulla over the cortex, producing the testis and its secretion of the male hormone. A dominantly female zygote determines the stronger growth of the gonadal cortex over the medulla, producing the ovary and its ratio of greater secretion of the female hormones over the male. The migratory germ cells are neutral at first but in the cortex they differentiate into the antecedents of ova and in the medulla they become the antecedents of sperm.

In many species of invertebrates the genic sex differences in the zygote are so small that the gonadal development is equal, producing functional hermaphrodites with fertile ova and sperm, simultaneously or alternately. In lower vertebrates such as the lamprey, one sex is genically sufficiently dominant to produce some degree of dominance of male or female gonads. Here are produced simultaneously fertile ova or sperm and infertile gametes of the opposite sex. In amphibians, reptiles and birds both gonadal tissues are found and both produce hormones but only one matures its gametes. Many species of invertebrates, fish and amphibians are gonadally so nearly equal in their hermaphroditism that cold water, depressing catabolism, is conducive to female development and warm water, accelerating catabolism, is conducive to male development.

In the evolution from cold blooded reptiles to warm blooded birds and mammals we find greater autogenous determination of gonadal differentiation against environmental temperature reversals and greater control of reproduction with the development of organs for copulation and internal fertilization, followed in higher species by organs for internal incubation and later by placental and mammary nutrition.

In female birds the left gonad is almost entirely ovarian with nearly complete suppression of the medulla, whereas the right gonad is dormant and contains nearly equal quantities of ovary and testis. Upon removal or destruction of the left gonad the right one becomes active and in some instances it becomes so completely dominated by the medulla as to develop into a fertile testis producing viable sperm. Then the hen becomes transformed into a rooster through increased growth in some bodily tissues and suppression of others. In one authentic case a fertile hen changed into a rooster that fertilized hens.

Increase of the degree of sex differentiation of mammalian gonads is shown in comparing the effects of placental circulatory union of twins. In cattle the male embryo develops normally and the female embryo undergoes suppression of further growth of female gonads and gonoducts with acceleration of male gonads and gonoducts. This condition has not been found in higher vertebrates such as the carnivora and primates. The experimental reversals of sex in embryos of the lower vertebrates is successfully produced by smaller doses of opposite sex hormones, and androgens seem to be more effective on females than estrogens on males. The degree of sex differentiation of the human embryo in its early stages is influenced by the ratio of male and female hormones in the mother's blood, which varies considerably at different times for the same person and may possibly be under autonomic nervous and emotional influence as well as a genically determined gonadal characteristic. The younger the embryo the less resistance it has to reversal in development. In all vertebrates prenatal or postnatal castration of genic males and females leads to the development of a neutral type of organism and personality, in which the degree of development of many characters is about equal and the social behavior is largely similar.

In somatic tissues some organs increase in growth in response to the male hormone, whereas others are inhibited. Likewise some grow more vigorously with female hormones and others are inhibited. In lower vertebrates, including birds, only some types of tissue are responsive to the sex hormones while others remain indifferent. The number of such positive or negative reactions increases in mammals. In man, and probably other primates, all the tissues of the body seem to react positively or negatively to male or female hormones. The influence of hormone antagonism is evident in the sex differences in growth of the internal and external genitals. The male hormone promotes the larger growth of the skeleton, somatic muscles and the viscera, including the cardiovascular and respiratory system, the brain, larynx, skin and facial and body hair. The female hormone promotes the larger growth of the pelvis and mammary glands. Behavioral evidence indicates that the nervous system is further differentiated in the cytoplasmic properties of at least certain medullary and thalamic and probably cortical centers by male and female hormones. Genic males are reversed to act in the female pattern and genic females are reversed to act in the male pattern.

A long list of homologous sex organs found in mammalian males and females is evidence of the completeness with which organic bisexuality has been retained. They include the gonadal cortex and medulla, the cortex being dominant in producing the ovary and the medulla being dominant in producing the testis; the male gonoducts including the epididymis, vas deferens, seminal vesicles and ejaculatory duct, and the female gonoducts, including fallopian tubes and uterus; the prostatic utricle which is homologous with the vagina; and the prostatic urethra which is homologous with the female urethra. The penis and clitoris are both formed by the corpora cavernosa and corpus spongiosum. The latter divides in the female and forms the vulvar opening to the vagina, whereas in the male it is united around the spongy urethra. In intersexuals the spongy urethra and corpus spongiosum are often found to be more or less open. The scrotum and labia are homologous as are the descents of the testes and ovaries, the adolescent ripening of ovaries and testes, and the development of adrenal cortex and mammary gland. Cyclical ovulation and menstruation of the female have no homologue in males of the higher vertebrates. In many vertebrates the time of ovulation is regulated by external conditions and in aplacentals menstruation does not occur. In rodents and some

carnivora the time of ovulation is determined by special pituitary secretions which are in turn excited by genital stimulation.

In females of the higher vertebrates ovulation and menstruation are extinguished in the menopause, and in the primates the undeveloped ova die out rapidly thereafter. Unlike rapid ovarian regression, the testes decline gradually, and males in the same species vary enormously in the degree and retention of masculinity, sex drive, potency and fertility. Natural sexual regression is characterized in males and females by the tendency to revert to the neutral or castrate pattern, which is not like the intersexual pattern. The tendency to regression is accompanied by similar symptoms in both sexes, such as increased irritability with reduction of energy and social drive, spontaneous autonomic fluctuations shown by hot flushes and sweating, anxieties, and loss of ambition, courage and ability to make important decisions. Physiologically regressive, hence psychologically regressive, executives, generals, admirals and statesmen in times of war lack the decision and drive necessary for conquering the enemy and should be bucked up by androgen therapy or placed in less critical positions of authority. Greater doses of androgens and estrogens seem to be necessary to maintain the integrity of the masculine or feminine attitude and state of estrus than to produce male or female growth of organs. Hence regression in masculine or feminine attitude and personality and decrease of sexual desire appear usually before organic regressive changes are evident.

In many instances compensatory energizing hormones are produced by other tissues, particularly the adrenal cortex. The cortex is derived from intermediate mesodermal primordial tissue closely related to the gonadial primordia. It is subject to hypertrophic proliferation under the metabolic or nervous effects of hard muscular work. Hence the social and sexual increase of aggressiveness of males and females after castration or the physiological decline of the gonads has a different kind of physiological meaning and psychological effect, although copulation is not uncommon.

One of the most striking differentiations in sexual evolution is the tendency in mammals for the centers in the nervous system regulating sexual behavior to become increasingly dominated by the cerebral cortex as it increases in development. In the lower mammals mating and copulating behavior are not greatly improved by experience, but in the dog, baboon, monkeys, apes and man comparative studies have shown that some kinds of sexual experience in preadolescence seem to be important for conditioning the unlearned cerebral cortex so that in maturity the personality can function socially in the right ways for wooing and control of copulation.

In man as in other species the young embryo of either genically dominant sex starts with the same hermaphroditic complement of male and female sex organs. At birth the sex differences of the body are well established and only minor changes appear up to adolescence, from twelve to fourteen years. Then the pituitary tropic secretions and the gonads become greatly accelerated, the quantity and ratio of sex hormone secretion are greatly increased. Thereafter organismic sex differentiation progresses at an accelerated rate until maturation of the skeleton and other organs in the early twenties.

Comparable bisexual differentiations also appear in the social attitude and personality of boys and girls from infancy through adolescence to maturity. The more logical, direct, obstinate, aggressive, self-confident, adventuresome, competitive and less easily inhibited attitude in boys, and the more intuitive, ambivalent, indirect and appealing, sensitive, inhibited and diffident but adroitly loquacious attitude with greater fear of uncleanness in girls, seem to have many definite categorical relations to the perineal structures and their future parts in mating and reproduction. The sex act of the male is more complex, aggressive, seductive and giving, and the female's act is more appealing, attracting, submissive and receptive.

In both sexes in infancy, handling, pressing and rubbing of the genitals for pleasurable feeling occurs. A second autoerotic and narcistic tide rises in adolescence in both sexes. It is probably much stronger or at least more repetitious and less cyclical in boys than in girls. In both sexes this phase tends to develop into homosexual infatuations, often with mutual masturbation which is again more vigorous in boys. Since in the autoerotic and homosexual play boys and girls tend to try both dominant and submissive rôles they may be regarded as hermaphroditic. By sixteen to seventeen in America, heterosexual interests begin to emerge, which by eighteen become more strongly directed towards genital intimacy. By twenty to twenty-two the desire for heterosexual intercourse and marriage becomes obsessive and it soon includes deep emotivation for parenthood.

If there has been no serious emotional interpersonal incestuous, perverting, prejudicial, appealing, or shunning, prohibitive and tabooing influence in the development of the child's sexual attitude, from the father or mother, the young boy or girl tends unconsciously and later consciously to accept the course of its organic development without undue castration fears and serious genital envies. It will then develop a confident, satisfied sexual attitude that is in fitting harmony in timing and extent with each phase of organic development and endocrine drive. If, however, the child has been daily, repetitiously influenced through appeals or prohibitions in any of a thousand little ways to want to have the organs and attitude, the abilities and privileges and praises given to the opposite sex, then the culture of attitude and personality will conflict with its organic development, and young males will become more feminine and females more masculine. Cultural conditioning produces masculine male, masculine female, feminine male, feminine female and variable intersexual attitudes. The latter crave to be feminine when they are with stronger attitudes in males or females, and crave to be masculine when they are with weaker attitudes in males or females.

The plastic bisexuality of man has enormous consequences for the medical and social sciences. When the social culture of the sexual attitude conflicts too severely with the dominant sex drive of the organism, neuroses including psychoses may be developed which greatly impair the health, happiness and efficiency of the individual. These disturbances are naturally proportional to the degree of endocrine pressure and attitudinal resistance. The behavioral patterns they de-

velop and the organs that are involved in hypertensions or hypotensions are secondary to and determined by the social conditioning of reflexes to do or not to do what is right and good or wrong and evil at the same time, or later to review conflicting acts of different times in miserable contrast.

Freud once taught that paranoia has a frustrated homosexual basis. This generalization has proven to be much too narrow. Feelings of persecution and social resentment tend to flare up and interconditionally systematize themselves around certain people upon the suppression of autoerotism, homosexuality or heterosexuality. Interference with anyone's love interest quickly excites jealous compulsions of resentment and retaliation that may dominate the personality even to homicidal or suicidal or any other destructive ends. Social suppression of all heterosexuality without adequate means of sublimation tends to produce an insidious regression towards homosexuality and autoerotism in young matured men and women, as it does in apes, monkeys and many lesser mammals. It is accompanied by reduction of mental and working efficiency, impairment of health, and reduction of drive, courage, stamina and the will to protect the home, church and state.

War is a highly intense stimulant of the daily release of energy in combative and erotic directions in millions of men and women. Naturally the most severe stresses are imposed upon the men in the military services whose personal liberties must be greatly curtailed. The nation is confronted by a social and medical problem of the first magnitude if it wants to uphold the courage and stamina, the moral conviction and decision, the fighting powers, the heterosexuality, the reproduction of its best genic patterns, and the health of its soldiers and sailors. Well meaning reformers seem purblindly to believe that all that is needed to solve the sexual problem is the removal of temptation. They fail to comprehend the insistent and recurrent progressive and regressive nature of sexual pressure in men and women.

If free heterosexuality is permitted the tendency to prostitution and venereal disease is a major cause of personal and physical deterioration. The experience with licensed prostitution and repeated medical inspection and daily certification of health and prompt prophylaxis has not been adequately successful in results or methods for lack of scientific thoroughness of execution. The people's realization that prostitution and sexually free women have played immensely influential biological rôles throughout the history of civilization, for both good and evil, in relation to the male's excess of sexual energy and the need to maintain the heterosexual attitude, especially in times of restriction and deprivation, such as occur in war, may lead to more effective hygienic regulations of such heterosexual outlets. Most masculine men will defy any legal prohibition against heterosexuality rather than regress to homosexuality and masturbation and signs of effeminacy. Civil and military authorities must make commonsense recognition of this tendency, for often it is stronger even than patriotism, or religion or family fidelity. Probably no single condition has more violent and disastrous effects upon the human personality than panic over homosexuality or autoerotism. Hence it is biologically inevitable that heterosexuality must be protected from venereal disease and social persecution.

The most effective measures, especially in long wars, are the removal of such prohibitions as illegitimacy against children born outside of marriage, removal of moral stigma against free, unprostituted love, hygienic regulation of prostitution by daily, legally authorized medical inspection, teaching the use of contraceptives as well as prophylactics, and the development to the limit of our social capacity of counterbalancing means and interests for sublimations of sexual energy. Creative work in religion, sports, arts, crafts, science and philosophy, designed primarily to win valuable honors and prizes of the State, and the greater reward in the love of the idealized sexual objective will greatly use up the sexual pressure of energy and reduce sexual unrest for a large number of men. Virtuous fidelity between lovers, or parents and children, is by far the strongest influence towards maintaining a high degree of courage, stamina, devotion and working and fighting powers in men and women. Many, however, are not so fortunately mated. Many are mismated or frustrated and naturally crave freedom to develop a new mate. Many men and women are so constituted that complete sublimation is impossible and heterosexual relations are necessary to prevent neurotic consequences. Climatic and racial factors are also important influences toward ineffectiveness of sublimation. Hence it is most unwise and impracticable to try legally to impose the idealism of sexual virtue and asceticism on all men and women alike in all conditions of peace and war.

The history of civilizations shows that decline and fall attends unrestrained sexual promiscuity and perversity. Whereas, nations rise in power under the suppressive and sublimating effects of severe monogamy. In such states woman has had virtuously, but unhappily, to carry the burden of limitations under a dual system of ethics. These conditions and consequences have applied to the manual era of civilization. We are now in a machine era that requires vast numbers of men, women and children to work in cooperation to keep the nation in the race for world dominance. New social methods of controlling sex relations must be developed.

Nature's Solution

Nature has provided a solution for this dilemma. It prepares males and females of human and other animals for mating by creating such intense organic cravings that it is more natural and pleasurable to yield to them, and even fight for them, than to deny or suppress them. Nature has from the beginning of sexual differentiation worked towards building up greater self-determination of sex development and freedom of sexual selection against external interferences. In every human child and adult this counterbalancing, developmental, creative principle is at work towards acquiring the most completely satisfactory mate, through becoming as completely satisfactory in development as the desired person. Social organization must build on this principle as much as any economic principle, in order to preserve its working and fighting powers from deterioration and being conquered by societies that have learned how to develop laws and institutions that make use of this principle in combination with the practical culture of heterosexuality and reproduction.

THE MODERN TREATMENT OF THYROTOXICOSIS

With Remarks Upon Its Importance in the Present War Emergency

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The importance of the various forms of thyrotoxicosis (Graves' disease, exophthalmic goiter, primary hyperthyroidism) in the medical experience of the American population will undoubtedly be temporarily accentuated by the numerous emotional upsets and nervous stimulations attending the present military emergencies. In the experience of the first World War, over eight thousand cases occurred in the army. Because of the markedly increased emotional and nervous tension accompanying this very much more serious military emergency, this figure will undoubtedly be relatively and actually increased. Already we have figures to show this tendency: according to Pepper, seven and six-tenths percent of the draftees from a number of counties in Minnesota were rejected for hyperthyroidism, a startlingly high figure. Because of this it seems most opportune to review the important facts of our knowledge of thyrotoxicosis, to accentuate the important parts of the modern therapy of this disease, and to take stock of the results which are to be expected.

Endemic Distribution of Goiter

Goiter is endemic in most of our states and is more frequently found in the middle northern and western northern states. Cases of hyperthyroidism seem to follow this distribution also.

Outside of the United States, goiter is common in England in the Thames valley, the Dales, Derbyshire, Sussex, and Hampshire. Exophthalmic goiter is more common in the west than in the east, and likewise more common on the sea coast than in the interior. There is no correspondence nor increase in frequency between the areas where goiter is endemic and exophthalmic goiter occurs.

In continental Europe there is a high incidence in Switzerland and the adjoining areas of France, Germany and Austria.

McCarrison has demonstrated the great prevalence of goiter in the Himalayas. In general it is much more common in the mountainous or inland regions than near the coast. Nevertheless, he saw little exophthalmic goiter among the native population in those regions where endemic goiter was extremely prevalent.

In conjunction with the widespread distribution of the American troops in all parts of the world, this knowledge of the endemic distribution of goiter and thyrotoxicosis is important.

Classification of Cases

For clinical purposes, cases of thyrotoxicosis (exophthalmic goiter, Graves' disease, Basedow's disease, primary hyperthyroidism) had best be divided into the following groups:

1. Classical cases of exophthalmic goiter showing in various grades all the cardinal symptoms of thyrotoxicosis, exophthalmus, rapid pulse, irritability and nervousness, swelling of the thyroid and loss of weight. All grades of severity can be found.

2. Cases of thyrotoxicosis similar to those in the first group, in which the cardinal symptoms are present with the exception of exophthalmus.

3. Cases falling into any of the preceding two groups, but in which psychotic symptoms of one kind or another, usually of the excitatory type, form the chief subjective symptom for which the patient seeks relief. The cardinal symptoms of thyrotoxicosis are usually present and elicitable but they seem to be without their usual emphasis.

4. Cases of localized adenoma of the thyroid with symptoms of mild hyperthyroidism. The patients are not very ill.

General Therapeutic Considerations

Intolerance for heat.—Because of their increased metabolism, tolerance for heat is decreased in patients with thyrotoxicosis. Clinically, it is notorious how severe postoperative febrile reactions are, and how badly these patients behave generally, when operation is done in the hot periods of our summer months. This is a very important item in the make-up of these patients.

Complicating Factors

There are two important complicating factors: 1, valvular or myocardial heart disease; 2, diabetes.

1. Thyrotoxic patients with heart disease (thyrocardiacs) should be well prepared for the ordeal of subtotal thyroidectomy by the usual well tried physical and medicinal means. The preparation for operation should proceed along the preliminary regime outlined elsewhere in this communication until the heart condition is put in as favorable a condition as possible. There should be no hurry about this cardiac preparation.

2. Diabetes is a rather infrequent complication. With our modern means of combatting this disorder, it should give no great cause for alarm.

Preoperative Preparation for Subtotal Thyroidectomy

No matter in which group the cases fall, the proper preoperative preparation is of paramount importance if success is to follow. The object of all of this preparation is to reduce the toxicity of the disease to a state in which operation will not be attended with any excessive amount of risk. The prevailing guides upon which this judgment is made are based on the nervous symptoms exhibited, the pulse rate, the basal metabolic rate and the gain in weight. When the preparation has been adequate, the patient's nervousness is very much diminished, the pulse rate falls to less than 100 per minute, the patient stops losing weight and begins to gain, and the basal metabolic rate falls to a low level, usually under 25. Practically speaking, one puts the patient through a course of medical treatment and tries to obtain as much of a medical cure as is possible.

The following regime for the preoperative preparation has been found to yield superior results:

1. Rest in bed under hospital conditions; no visitors; no other patients in the same room.

2. A high caloric diet, never less than 3500 calories per day. It is necessary to make sure that the patient takes the full amount of diet ordered. He should be weighed frequently, at least twice each week, to guard against any loss of weight.

3. Sedation given (a) in the form of medication and (b) by physical means. I personally prefer phenobarbital given in such dosage as to make the patient sleepy a good part of the twenty-four hours. Hydrotherapy in the form of the Priessnitz pack given two or three times daily is an excellent adjuvant sedative measure.

4. The basal metabolic rate should be determined once each week as this gives a reliable index of the improvement which has taken place.

5. In the usual run of cases, iodine had best not be administered until the maximum effect of the preliminary treatment has become apparent, usually in from two to three weeks. This is recognizable both by an amelioration in the general clinical picture and by an appreciable fall in the basal metabolic rate. At this stage iodine in the form of Lugol's solution should be administered. The dosage should be adequate—not less than ten minims three times each day and sometimes a little more. When the patient responds favorably, further betterment of the subjective symptomatology and a further fall in the basal metabolic rate occur. Commonly the patient at this stage feels, acts and looks very well.

Therapeutic Effect of the Preliminary Preparation

The effect of all of this preliminary treatment will, clinically, be one of these three:

1. The cases which respond readily and quickly.

2. The cases in which a moderate amount of difficulty is present, chiefly in that the basal metabolic rate falls very slowly or not to the low level to which we should like it to fall.

3. The cases in which marked difficulty in preparation is present. The difficulty is clinically apparent in that the patient's symptomatology does not improve, there is persistent loss of weight, and the basal metabolic rate remains at a high level and does not fall.

In the cases in group 3, the preliminary treatment without Lugol's solution should be persisted in for a much longer time, until all the possibilities of this have been exhausted. Only then should Lugol's solution be administered. Rarely, a dramatic response occurs; the symptoms improve and the basal metabolic rate quickly falls to the desired low level; or, no improvement follows. The latter form the group of most difficult cases to manage; and the difficulty sometimes is insuperable. If Lugol's solution produces no effect within twelve or fourteen days, the chances are that no further good will be accomplished by it, as these patients have a tendency to become iodine-fast. They should nevertheless be immediately operated upon. If operation is not done at this most opportune moment, it commonly happens that the good effect of the iodine as a preparatory measure for operation is lost, or, at least, lessens; i.e., the patient becomes, as we say, "iodine-fast"; and operation done subsequently is done at a much increased risk. This tendency to become iodine-fast is an important factor commonly found in the makeup of hyperthyroidism.

Operative Treatment

Operation is the final stage of the active treatment. Satisfactory results are only obtained by removal of an adequate amount of thyroid tissue, i.e., by subtotal bilateral thyroidectomy. Other operative procedures, such as pole ligation, or any unilateral operation, can be considered only as preliminary procedures for the thyroidectomy. These are commonly referred to as stage operations.

It is my firm belief that when a patient is so sick that stage operations must be considered, he is not ready for any operation, either because of the severity of the illness, or because he has been badly or insufficiently prepared. It is always my hope that patients will come at an early stage of their illness, and before iodine has been given. Then with any kind of cooperation on the part of the patient and the patient's family, preparation can always be done properly and adequately. Then, too, I am always able to do the entire operation at one sitting with as little risk as possible.

An important point to remember is that neither the patient nor his family should know when the operation is to be done, in order to prevent undue nervous tension.

The steps of the operation are well known and need no repetition here. Suffice it to say, that only a small strip of thyroid tissue at the posterior border of the gland on either side is left with a small segment of the upper pole. The raw area of thyroid tissue is closed by suture. Proper precautions are, of course, necessary in order that neither the recurrent nerves nor the parathyroid glands are injured or removed accidentally.

Convalescence should not be hurried. Lugol's solution is continued in the immediate postoperative period and in decreasing doses later and for several months. Several months usually elapse before the full benefit of subtotal thyroidectomy is obtained, and the patient should be kept under follow up observation for a long time thereafter.

Appraisal of Results

In the great majority of the cases, the regime outlined in this communication will be followed by a more or less complete subjective cure. Nevertheless, in most instances, many of the demonstrable preceding objective symptoms, such as exophthalmus and tremor, can be demonstrated postoperatively to some degree. There also continues some of the underlying potentiality for nervous disturbance which should be taken as a warning that, even if the patient is apparently subjectively cured, any undue and extraordinary stimulus can cause a recurrence of symptoms. For this reason a searching inquiry into the possible causative factors which produced the illness originally should be made with the object of eliminating them from the patient's life. In this regard, the home and the business influence and atmosphere are of paramount importance.

In observing the patient after operation, the determination of the basal metabolic rate should not be made for at least one month after his discharge from the hospital. It is preferable that this should fall to slightly below normal. In spite of any possible adverse opinion, I still feel that the basal metabolic rate is the best available all-round measure of any hyperthyroid activity, both before and after operation, when taken in conjunction with the clinical picture.

Recurrences of Symptoms

Recurrences of symptoms occur in a small proportion of the cases—probably ten to fifteen percent. These recurrences are based upon physical changes associated with, 1, an insufficient removal of thyroid gland substances; and/or 2, with a hyperplasia and/or hypertrophy of the part of the gland left, or they are based upon undemonstrable biological chemical changes, either in the part of the gland left or in other glands of the endocrine system, notably the pituitary. Not always is there any increase in the basal metabolic rate, although there are cases, especially when there is enlargement of the stump of the gland, where it can rise to a height comparable to that preceding operation.

When a full blown recurrence of symptoms occurs, the patient should be put through a course exactly similar to that preceding the first operation, and should then be reoperated upon and any demonstrable excess of thyroid gland tissue removed. Sometimes the amount of residual thyroid tissue after subtotal thyroidectomy is small; but it has happened in my experience that the removal of even such small amounts has given good secondary results.

In other cases we are left with the therapeutic use of Lugol's solution with or without the use of radiotherapy. These are most difficult cases to handle and not always does success follow our efforts. Radiotherapy has very seldom, in my experience, given sufficiently satisfactory results, either primarily before the primary operation, or secondarily, for any residual or recurrent symptoms.

The most difficult group of patients are those in whom, preceding the primary operation, the symptomatology had included psychotic symptoms. In all of my experience I have never seen one case in which these psychotic symptoms have disappeared completely. It sometimes happens that they are slightly lessened for a very short period; but then they always have recurred. Good psychiatric treatment is indicated, but the outlook for the disappearance of the psychotic symptoms is very poor.

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THE ADRENAL GLANDS IN STRESS, TOXEMIA AND INFECTIONS

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Man's life is a constant series of interactions between things outside him and things inside him. Health and happiness are practically synonymous with order and balance within, and this is quite largely dependent upon the endocrine equilibrium. As Goldzieher (1) nicely puts it, "The function of the endocrine system is to maintain homeostasis or, in other words, a well-balanced 'internal environment' ".

The difficulty is, of course, that external factors are always tending to upset this "internal environment", and they do it by bringing about endocrine maladjustments. Nowhere is this more clearly evident than in our knowledge of adrenal reactions to mental, emotional, and toxic stress.

One of the outstanding clinical accomplishments in a century of medicine was the observation of Thomas Addison, of London, that connected the asthenic syndrome that bears his name with adrenal destruction. Another equally important advance was the discovery in 1894 by G. Oliver and E. S. Schäfer, of Edinburgh, of the pressor influence of the medullary portion of the glands. Of the same epoch-making character have been the perfection during the last few years of the cortical hormone and the clinical discoveries connected with its use in medicine.

For many years epinephrine was regarded as the only adrenal hormone, and those of us who felt otherwise were regarded with sarcasm, mercifully diluted with a little pity. It was not until methods were perfected to remove the epinephrine and concentrate the true adrenal hormone—the cortex hormone—that it became possible really to do things with experimental ablation and with the major degrees of hypoadrenia, as in true Addison's disease.

Today, however, we have cortin in active form for both oral and parenteral therapy. Its potency is easily demonstrable in both the laboratory (in bilaterally adrenalectomized animals) and in the clinic (in Addison's disease and in pre-Addisonian syndromes or minor hypoadrenias).

Standardization of Adrenal Cortex Hormone

There is no generally accepted standardization for adrenal cortex hormone products. Among the more widely used measures of potency today are the rat unit and the one-half rat unit of Grollman, the rat unit of Hartman, the cat unit of Hartman, and the dog unit of Swingle. All of these standardizations depend essentially upon the capacity of the extract to maintain life in adrenalectomized animals. They differ markedly, however, in their quantitative evaluation of physiological potency. The strength of certain products is still expressed in terms of fresh glands ratio per cc., but this, of course, provides no indication of biologic activity.

Grollman's rat unit is probably the best unit of potency. By the Grollman method a preparation must show its capacity not only to maintain life in adrenalectomized rats but also to maintain the normal growth rate of these rats at the period when growth is most rapid. We must keep in mind that the effect of the adrenal cortex hormone is reflected upon the functional status of every endocrine gland in the body. Since normal growth may be considered a response embodying the sum total of all the normally functioning endocrine glands, it is readily seen that such a test of potency is indeed an "acid test."

The Swingle dog unit is another widely used method of assay for the cortical hormone. According to Cartland and Kuizenga (2), one Grollman rat unit is equivalent to about twenty-two and one-half Swingle dog units.

Function of the Adrenal Cortex Hormone

The bilaterally adrenalectomized animal is unable to maintain a normal blood volume, due to a failure in the blood diluting mechanism. Swingle and associates (3) believe that the primary function of the adrenal cortex is the regulation of the fluid balance of the body. Parenthetically, the regulation of hemoconcentration is considered by most authorities to be the prime mechanical factor involved in the hypotension that is constantly seen in adrenal insufficiency.

Loeb and his coworkers (4) are of the opinion that the most important function of the gland is the regulation and conservation of sodium chloride in the blood. It is established that the ability of the kidney to filter chlorides is dependent upon the cortex hormone. The loss of this function is one of the first results of adrenalectomy in the experimental animal.

Britton and Silvette (5) feel that the essential cortical function is concerned in some way with carbohydrate metabolism. Following adrenalectomy in the experimental animal or in acute adrenal insufficiency in patients, the blood serum decreases and the body glycogen stores are depleted.

A number of workers consider that an upset in potassium metabolism may be the primary abnormality in adrenal insufficiency. This school is headed by Zwemer et al. (6), and Dr. Loehner (7) has worked with these investigators. It is known that potassium is a toxic ion when present in the blood in abnormally large quantities, and it has also been shown that the potassium concentration of the blood rises precipitously following adrenalectomy.

Obviously, all of these functions are important, and given a case of lowered adrenal cortex function, we will find a marked disturbance in water and electrolyte metabolism, with a secondary involvement of carbohydrate utilization. There will also be seen a disturbance in fat metabolism, according to Westerlund (8). It is further established that the adrenal cortex plays a tremendously important rôle in the normal resistance mechanisms of the body, and obviously, in adrenal insufficiency there will be a lowered resistance to infection or to toxic substances (Scott et al., 9, 10, 11).

Unfortunately, many physicians and many textbooks persist in regarding adrenal cortical insufficiency as synonymous with Addison's disease. In recent years, however, a number of authorities have found that for every case of Addison's disease there are a hundred cases of sub-Addisonian adrenal cortex deficiency. This would seem only rational when we remember that the adrenal cortex is affected by a variety of common stresses to which we all are daily subjected. As Hartman (12) puts it:

"Stresses which increase the requirements of adrenal hormones are infections, toxemias, shock, trauma, heat, cold and exercise."

Influence of the Emotions upon the Adrenals

It was during World War I that George W. Crile (13) of Cleveland wrote his discussion, *The Vivisection of a Nation,* in which he pointed out that the ". . .kinetic system. . .is driven by stimuli from the internal and the external environment. . .The organs of the kinetic system are the brain, the adrenals, the thyroid, the liver, and the muscles, and we have shown that identical changes are produced in these organs by every driving stimulus, whether exertion, fear, anger, injury, worry, grief, homesickness, or a foreign protein."

More recently, from London, where mental and emotional (and hence adrenal) repercussions of war horrors must be intense, the editor of the *Lancet* (14) writes: "Apart from the possibilities of cortical extract, . . . in the treatment of shock, it is tempting to speculate whether adrenal cortical exhaustion has anything to do with the cumulative ill effects of repeated exposure to strain, for instance, the short daily exposure of aeroplane crews to mild degrees of oxygen lack."

Back in 1929 Walter B. Cannon, of Harvard, wrote an entire book on this subject, *Bodily Changes in Pain, Hunger, Fear and Rage* (15). His researches showed that the adrenal glands were very definitely aroused by emotional stimuli—so much so that the socalled "fright, fight and flight mechanism" is closely involved with the adrenals, accentuating the capacity of the body to react, and correspondingly with a depletion of this mechanism when the stimuli are too great.

The more recent work of Hans Selye has established the antishock action of the cortex hormone. He has described in histological detail what happens to these glands under experimentally produced stress and shock. Selye (16) was able to produce typical lesions by exposing animals to cold, trauma, excessive muscular exercise, acute infections, etc. It would seem, though, that Crile's observations anticipated Selye's. Not only did Crile confirm histologically the effect of these intangible adrenal-stressing factors in animals, but he also demonstrated microphotographically the effect on the adrenals of a soldier who apparently died as the result of the combined influences of insomnia, exertion, emotion, and infection.

The most striking of the phenomena described by Selye is the disappearance of the lipid granules from the cortex cells under adrenal stressing stimuli and their reappearance when the stimuli are removed. These cortical lipid granules are intimately associated with the life-maintaining adrenal hormone so that they serve as an indication of adrenal cortical function.

In addition to Selye's important *Studies on Adaptation,* in which he tells of his investigations of the adrenal cortex mechanism for regulating the body's defenses and adaptations, he and his associates (17) have added a new term to medical literature, and a new concept to our thinking about the adrenals. This term is "countershock", and it indicates the defense reaction seen in animals following recovery from exposure to damaging agents. In the countershock reaction the symptoms and signs of the shock reaction are actually reversed. It was noted that adrenalectomized animals which have been treated with cortin show much greater resistance to adrenal-damaging agents and respond with definite countershock phenomena; also that more cortin was required for "shock resistance" than for maintenance of life under normal conditions. These workers concluded that ". . .increased cortin production plays an important rôle in shock resistance, and that the symptoms and signs of shock are at least in part due to a relative adrenal insufficiency. In an effort to imitate the physiological countershock phenomena, we administered large doses of cortin to rats in which damage was produced by diverse means, and found such treatment to be highly effective in counteracting the objective signs of shock."

One of the papers issued from McGill University is by Weil and Browne (18), who demonstrated that cortin may be found in the urine of postsurgical patients, as well as in postinfluenzal cases, where it is not found normally. These workers noted that none of the postsurgical cases showing this increased output of cortin developed postoperative shock, and apparently, this excessive cortin secretion indicates a response of the organism to a damaging stimulus by abnormally increased corticoadrenal activity. These changes may reach the point of actual hypertrophy such as is normally seen in the second and third trimester of pregnancy.

The conclusions of these Canadian workers not only establish the rôle of the adrenals in the shock reaction and of adrenal cortex therapy in antishock measures, but appear to be directing attention to the essentially prophylactic value of such therapy. At least, Weil and Browne state, in a later paper (19):

"It would seem, therefore, that the administration of adrenal cortical substances, preoperatively and postoperatively, and in conditions of damage such as infection, serious burns, and other forms of trauma, may be of clinical importance."

The broader potentialities of adrenal cortex hormone therapy in the prevention and control of shock are suggested by Selye's (17) statement: "The fact that cortical therapy exerts beneficial effects in so many different conditions makes it rather likely that the hormone is not a specific antidote in any of these cases, but raises shock resistance in general, because a condition of 'relative adrenal insufficiency' exists in organisms exposed to nonspecific damage."

"Nonspecific damage" seems to be an apt phrase for the shock which must always accompany surgery in some degree. Today the modern surgeon is becoming "adrenal conscious"; he is taking it for granted that the patient's adrenal department requires protection and support long before the patient reaches this dire state of hypoadrenia where the most heroic efforts may be fruitless.

Influence of Toxins on Adrenals

In his discussion of the various functions of the adrenal cortex, Hermann Zondek (20) says:

"In the first place there is its *detoxicating* property which particularly affects *muscular activity*. In almost every animal, adrenalectomy is followed by extreme muscular debility, especially of the hind legs, which may even result in paralysis. Rats, however, generally stand the operation well because they are provided with accessory adrenal tissue; but if they are forced to exert their muscles, fatigue ensues and attains an alarming degree, occasionally they even die (Mauerhofer, Albanese). Obviously, toxic products of fatigue accumulate in the muscle (Abelous and Langlois; Asher and Erni) . . .

"To some extent the detoxicating power of the cortex may also play some part in certain infectious diseases of man and animals. Possibly this is due to stores of free and esterified cholesterol in the adrenal cortex. In various infectious diseases (e.g., diphtheria) hemorrhages, necroses, loss of lipoids and edema are commonly observed; injection of diphtheria toxin is followed by hyperemia and hemorrhages of the adrenal glands."

Serious Burns

A common toxemia with close adrenal repercussions is that which accompanies serious burns—here the toxic damage is accentuated by shock effects.

One of the first references to this subject comes from Einhauser (21). On the basis of animal experiments he concluded that in severe burns death is not due to the toxemia resulting from the disintegration of albumen, but to severe adrenal cortex injury. In animals with experimental burns it was found that treatment with adrenal cortex and vitamin C caused better healing and lengthening of life. In the treatment of burns, therefore, Einhauser recommends cortex extract plus vitamin C in medium doses.

There are many other references to the value of this therapy. For instance, Max Goldzieher, in his book, *The Endocrine Glands* (22) says: "Success similar to that in the treatment of infectious diseases is reported concerning the treatment of burns with cortical hormone and cevitamic acid. Animal experiments have also corroborated the contention that the life of the burnt or scalded animal is prolonged and the healing of the local injuries speeded up by the combined hormone-vitamin therapy."

Vomiting of Pregnancy

A very common form of toxemia in which this comparatively new approach is being materialized into a really worth-while therapy is the vomiting of pregnancy. This development came as a result of empirical application of the general idea that cortin is a detoxicating agent and numerous clinical reports are now in print confirming the original claim by Kemp (23) that "Hyperemesis gravidarum is due to a relative insufficiency of maternal cortico-adrenal secretion to meet the new demands upon maternal metabolism. Until such time as there is a compensatory hypertrophy of the maternal adrenal cortex (about the third month presumably), the oral ingestion of a potent desiccated extract of beeves' adrenal cortex is effective in preventing and curing early cases of hyperemesis gravidarum."

The corticoadrenal hormone is now considered to be a potent means of controlling the toxemias of early pregnancy, for in a later paper (24) this same author concludes that "After a thorough clinical trial over a period of two years, adrenal cortex therapy for the vomiting of pregnancy appears to be specific treatment if applied early in the course of the untoward symptoms."

Hyperthyroidism

Another lesion which may be regarded as a toxemia and which certainly exerts detrimental effects upon the adrenals is hyperthyroidism. Furthermore adrenal therapy has been recommended by several writers as a worth-while symptomatic remedy. For example, David Marine (25) asserts "that a deficiency of some internal secretion of the suprarenal cortex and sex glands is one of the fundamental factors in the etiology of Graves' disease, and that the thyroid changes actually represent a compensatory mechanism, although often an injurious one . . . In over fifty cases we have found that feeding a glycerol emulsion of very fresh ox suprarenal cortex (glands from which ninety percent of medulla has been removed) causes a striking gain in body weight and in muscle strength. These effects quite constantly begin to appear after two weeks of feeding."

According to Max Goldzieher (26): "Among all endocrine products, extracts of the adrenal cortex have proven to be of the greatest value [in hyperthyroidism]; this is in accord with the established functional antagonism between the adrenal cortex on the one hand and the thyroid and sympathetic nervous system on the other . . . The best response is obtained, according to our own observation, by injection of the adrenal cortical hormone combined with oral administration."

Influence of Infections on Adrenals

The most important illustration of the intimacy of endocrine physiology with the immunological responses is found in the adrenal cortex. Infections represent the largest proportion of the cause of endocrine irregularities; and the whole subject of adrenal insufficiency is inextricably entangled with postinfectious syndromes and convalescence.

Experimental and Pathological Evidence

On the relationship of the adrenals to infection, Levy Simpson (27) recently said: "Experimental and pathological evidence indicate that the adrenals play a part in the reaction to infection . . . the cortex tends to show more obvious changes. Thus, there is a decrease of lipoid, a vacuolization of cells, degeneration of nuclei, vascular engorgement, and a liability to hemorrhage and thrombosis. . . Adrenalectomized animals, and also patients with Addison's disease, are susceptible to intercurrent infection, and their resistance to infection is so poor that a comparatively trivial infection may lead to death."

Much of the pathological evidence referred to by Simpson was provided during the Great War and the influenza pandemic of 1918. In a report of autopsy studies of soldiers dying of influenza at Camp Zachary Taylor, Lucke and associates (28) state that in most cases the adrenals showed a slight increase in size and definite congestion; and that, microscopically, the cortical cells appeared slightly swollen and usually devoid of lipid granules. This lipid exhaustion was noted in almost every case.

Now, with regard to the experimental and clinical value of adrenal cortex therapy: Scott (29) demonstrated that adrenal cortex extracts were able to protect experimental animals against intoxications with both staphylococci and streptococci. Hartman and Scott (30) showed that resistance of adrenalectomized rats to intoxication with killed E. typhi and Staphylococcus aureus was greatly increased by adrenal cortex extracts. The Pottengers (31) even report beneficial effects on tuberculous guinea-pigs from treatment with adrenal cortex.

An especially valuable contribution is a report by Liffschitz (32), in which he states that a combination of the cortical hormone and ascorbic acid stimulates bacteriolysis and antibody formation in infections.

Clinical Observation

From the clinic come many reports of the value of cortin therapy in infections. One of particular interest is that of Whitehead and Smith (33). These observers obtained prompt subjective improvement with adrenal cortex extract in typhoid fever, Malta fever, erysipelas, lymphangitis, and sinusitis, which they say confirms their assumption that it might have some action in increasing the body's resistance to bacterial intoxication.

Another interesting clinical report was made by Wenner and Cone (34), who used adrenal cortex extract in pyogenic infections. It proved to be effective in reducing the temperature, and in improving the patient's general well-being and resistance to the shock of operative procedures.

Discussing the common clinical syndrome of adrenal insufficiency, Goldzieher (35) points out that the adrenal gland is especially susceptible to degenerative or inflammatory changes in the course of almost any acute systemic infection.

The value of adrenal therapy in the common respiratory infections has been confirmed in several papers from Barbour. In one of his latest articles (36) he gives the essence of his observations thus: "Whole adrenal gland, given by mouth, has been used in the treatment of seventeen hundred cases of respiratory disorders associated with a disturbing cough, during a period of eight years, with a clinical improvement in from seventy to ninety percent of the cases."

It has been demonstrated repeatedly that one of the best ways to restore the fighting power of the adrenals is by adrenal cortex therapy—thus boosting the patient's resistance during an infection and preventing the asthenia that so often follows.

Among the many recent reports on this phase of the subject is one from Perla and Marmorston (37) who found that in bronchopneumonia and severe grip, adrenal cortex therapy was effective in "periods of collapse" and in "shortening convalescence". They say: "In several of the patients, periods of collapse were readily combatted by cortin intramuscularly . . . three to five cc. every six hours night and day. . . The criterion of its value was noted in the maintenance of normal blood pressure, decrease in signs of toxicity, avoidance of circulatory collapse, maintenance of appetite and sense of well-being, decrease in the tendency to complications, . . . and shortening of convalescence."

As mentioned previously, Weil and Browne (18) found cortin in the urine during convalescence from influenza in persons who normally excrete none, also in chronic suppurative infections. In their opinion, "these experiments . . . suggest that an increased secretion of the adrenal cortical hormone forms part of the protective mechanism."

In William Wolf's very complete *Endocrinology in Modern Practice* (38) we find this statement: "In asthenic conditions it [cortex hormone] has been used to advantage, especially after infectious diseases; . . . after influenzal attacks, . . . there is evidence that focal necroses occur in the adrenal cortex, with definite lowering of its endocrine function. The use of cortical extract in these cases seems, therefore, to be logical."

Discussing endocrine factors in bodily defense Pottenger (39) said: "More recently we have had experience with the products of the adrenal gland in treating certain infections. We have found that the duration and severity of colds have been lessened by adrenal therapy."

There is ample evidence, then, of the etiological importance of infections in the production of endocrine lesions, and conversely of the significant rôle of the adrenals in the body's defense mechanism, also of the potentialities of adrenal cortex therapy in the treatment of infections.

Summary

"Too little and too late" epitomizes tragically the reason for many disasters to our cause in the present struggle. Probably it also epitomizes the reason for many failures with adrenal therapy.

Evidence has been presented that common infections, emotional and toxic influences may have adrenal-depleting effects. There now can be no doubt that minor degrees of adrenal insufficiency are far more common, far more responsive to treatment (and, therefore, far more important to the average physician) than major degrees of adrenal insufficiency such as Addison's disease.

Wait for Addison's disease to treat adrenal depletion and you miss countless opportunities to intervene effectively in a wide variety of adrenal-damaging conditions. Some of us believed this and practiced it twenty years ago when criticism was bitter and adrenal extracts crude. Today the extracts (oral and injectable) are pure and potent; the criticism is scattered and feeble in face of mounting scientific evidence that minor adrenal insufficiency is a common clinical entity that can be effectively treated.

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THE APPLICATION OF TESTICULAR AND PROSTATIC EXTRACTS IN PROSTATISM

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Endocrinology, a comparatively new branch of medical science, offers a definitely efficacious constituent to the armanentarium of modern therapeusis. As in every other branch of the healing arts, an exhaustive study of the pathological conditions to be rectified is a *sine qua non,* together with a thorough knowledge of the physiology of the involved organs. Finally, the function of the endocrine secretions in regulating and controlling the body economy must be understood. All this combined knowledge is a prerequisite to proper treatment.

The number of hormones, as well as the varied characters of each, presents this department of therapy with numerous complex problems—problems that tax to the utmost the ingenuity of the most conscientious investigator.

The gonadotropic and steroid hormones are among the most potent and are now commonly employed in the treatment of many disorders of growth and sexual function. Of the former, three principal types are recognized, namely, the anterior pituitary gonadotropic hormone, the chorionic gonadotropic hormone—a substance found in pregnant urine and elaborated by chorionic tissue—and the equine gonadotropic hormone which is found in the serum of pregnant mares. The steroid hormones include desoxycorticosterone elaborated by the cortex of the adrenal gland and the various male and female sex harmones.

In addition to the pure hormonal preparations, many of which have been isolated and synthesized, there are numerous glandular extracts of no inconsiderable importance which are available both for paren-

teral and oral administration. Among these are isotonic extracts of beef prostate and testicle which presumably represent the total hormonal content of the organs, and are employed extensively in the treatment of a multiplicity of conditions related to disorders of genital function.

Impressed by the recent work of Savitz and Chartock (1), who obtained striking results in the treatment of chronic prostatitis and prostatic hypertrophy I was impelled to review a number of my own cases that had received prostatic and testicular extracts and to report the status of these patients at the present time.

Tabulation of results has not been attempted in this preliminary study as I am primarily concerned with general considerations; and some latitude in the matter of the hormone product selected and the dosage schedule advocated has been allowed. In fact, in some instances it was necessary to resort to socalled "crossed therapy," i.e., introduction of the female hormone into the male organism and vice versa. It was Crofton (2), who early called attention to the fact that testicular substance is clearly "one of the most powerful tonics we possess for both men and women." Maranon (3), conversely used ovarian extract in men with good results, and recently Desmarest and Capitain (4) have suggested the combination of estrogenic and androgenic therapy for the control of postmenopausal disorders. The last named investigators frequently recommend this type of therapy to stabilize the stress and strain which occur during and after the menopause. A water soluble testicular extract was used by Lower and McCullagh (5) in the treatment of seventy-six cases of benign prostatic hypertrophy. Sixty-three percent were greatly benefitted. Lower later reported on a total of 151 cases with good results in 57.79 percent.

Speculation regarding the presence of a prostatic hormone has existed since the time of De Bonis (6), and Serralach and Pares (7). In the former report it was shown that the administration of prostatic extract to castrated dogs causes the production of new granules in the secretory cells and renews sexual activity on the part of the animals.

As previously indicated, Savitz and Chartock (1) have delivered their second report on the use of an extract of beef prostate in the treatment of prostatic disorders. The authors state that "out of the forty patients treated, thirty-two were completely relieved and became symptom free (eighty percent)." Their results proved that "the prostate extract is worthy of consideration as a therapeutic measure in the management of benign prostatic hypertrophy."

The present communication deals principally with the use of testicular and prostatic extracts, although in several instances the therapeutic approach was facilitated by concomitant administration of other endocrine preparations including estrogenic hormones.[1]

Having my own laboratory with a full time technician in attendance, complete studies on all cases are possible, while follow-up examinations at regularly stated intervals are a routine precedure.

The following reports are submitted as representative in my series of thirty-nine cases:

[1]Ampacoids Prostate, Ampacoids Testicle, Testacoids and Estrogenic Hormone R & C, were supplied for these studies through the courtesy of Reed and Carnrick, Jersey City, New Jersey.

Case I.—N. C., male, aged forty years, weight 146 pounds. Present illness began nine months ago. Family and personal histories were uneventful. The patient contemplated marriage, but hesitated because of his physical and mental condition. His chief complaints were related to disorders of the genital function and included, principally, impotence, nycturia four to five times and a prostatism bordering on true melancholia. Objective examination revealed tenderness of the prostate, blood pressure 140/80, pulse 72, and pallor of the skin. Following the usual preparatory treatment, alternate daily injections of testicular extract (ampacoids testicle) and prostatic extract (ampacoids prostate) were administered over a period of about six months. All symptoms disappeared following this somewhat intensive therapy, marriage was consummated and has proceeded successfully. The patient apparently has been restored to full health.

Case II.—C. P., male, aged seventy-six, weight 184 pounds. Present illness began five years ago. Family and personal histories were uneventful. Subjective symptoms were limited to prostatism with nycturia three to four times. There was an associated hypertension (blood pressure 185/95) and moderate secondary anemia. Treatment consisted of the usual tonics and alternate injections of ampacoids prostate and ampacoids testicle. On an average the patient received two injections per week and this schedule was continued for a period of one year. At the end of this time, the anemia had been almost entirely conquered and nycturia had practically disappeared. It is noteworthy that when the injections were discontinued nocturnal urinary difficulties immediately reappeared. Good health is now being maintained with only occasional treatments.

Case III—A. E., male, aged seventy, weight 203 pounds. Present illness began about four years ago. Previous to this time the patient had occasionally been under medical care for a nervous condition with mild secondary anemia. No urinary difficulties had been in evidence, however. Chief complaints: nervous exhaustion, mental aberrations, nycturia three to five times. The patient presented the typical picture of prostatism together with secondary anemia, noticeable tremor, variable but usually exaggerated pulse, and hypertension (blood pressure 190/98). The prostate was enlarged and tender. Treatment consisted of the usual blood and nerve tonics followed by alternating injections of ampacoids testicle and ampacoids prostate. An average of two injections per week was maintained over a period of ten months. Good results were obtained until treatment was suspended. At present, the patient resorts to glandular therapy only when his former unpleasant condition appears to be returning.

Case IV.—D. A., male, aged fifty-three, weight 148 pounds. Present illness began six years ago. A great deal of the patient's difficulties originated from a luetic condition which unfortunately proved to be arsenic-fast but for which he had received intensive treatment in three different clinics over a considerable period of time. The blood Wassermann was 4 plus on my first examination, but after active therapy with remedies more extensively used in former years—but which are nevertheless often surprisingly effective in certain stubborn cases—the pathological blood picture completely cleared and has remained normal to this date. Chief

subjective findings after initial treatment were extreme nervousness and an almost obsessional tendency to dwell on the former luetic condition. The patient's complexion was pallid and the secondary hypochromic anemia was complicated by a low polymorphonuclear cell count. Blood pressure 148/84.

After preliminary antisyphilitic treatment had been instituted, blood tonics and rest were ordered. The patient then received regular intramuscular injections of ampacoids testicle fortified by testicular-prostatic extract tablets (testacoids) by mouth. Except for occasional lapses into his former mental depression, the status of the patient at the end of the treatment was excellent.

Case V.—A. J., male, aged thirty-two, weight 135 pounds. Present illness began one year ago. His past history was irrelevant. Treatment had been sought because of acne vulgaris with which he was suffering. Rectal examination, however, revealed considerable enlargement of the prostate, although the gland was not tender on palpation. Other objective findings were normal. Following the usual applications for acne, a four month course of ampacoids testicle was administered in biweekly injections. At the end of this time, the acne had almost entirely cleared up and the size of the prostate was found to have decreased practically to normal.

Case VI.—S. N., spinster, aged seventy-nine, weight seventy-three pounds. Her present illness began about three years ago; her past history revealed no serious previous illness. An inoperable cancerous mass, primary in the right ovary and involving the pelvis and contiguous area, had been neglected because of the patient's religious tendencies. Objectively there was marked tenderness over the pelvis and a grade 1 hypertension (170/104). The patient was cachectic. The urine showed albumin, sugar, high content of indican and 60-80 pus cells per microscopic field; red blood cells, 3,000,000, white blood cells 19,750. In spite of intensive treatment considerable difficulty was experienced in modifying the urinary findings. Operation was eventually accepted, following which the blood pressure dropped to 98/50. After-care included commonly used tonics and several transfusions of whole blood. Considerable quantities of estrogenic hormones were also administred intramuscularly over a period of twelve months and although the systolic blood pressure returned to 120, the urinary picture remained the same. With little hope of success, we elected to try socalled "crossed therapy" and, therefore, the patient was given three testacoids tablets four times daily. Following the first course of treatment, the urinary albumin was reduced to a trace, glycosuria and casts disappeared and the pus cells were reduced to 1-2 per microscopic field. Discontinuance of the testacoids led to the reappearance of all the previous urinary findings, while resuming treatment was again effective in controlling the condition. The exact role played by the testicular-prostatic extract, testacoids, is questionable, but the results obtained in this instance were nothing short of dramatic. It would be necessary to study a series of similar cases to draw acurate conclusions.

Comment

The condition of prostatism is often confused with its cause, namely, a diseased condition of the prostate gland. Properly speaking, prostatism is a morbid state, either of mind or body or both and is characterized by symptoms largely general in nature and resembling in many instances those of the male climacteric (Table 1). Local symptoms especially referable to the urinary tract are usually also in evidence. Most noticeable of these is nycturia (Table 2). The therapeutic response in all cases in our series was eminently satisfactory, although other customary measures must be used in conjunction with glandular therapy. The close relationship that exists developmentally between the male and female urinary tracts is shown by the remarkable reaction to socalled "crossed therapy" in Case VI. The case of acne that responded so promptly confirms the observations of other investigators, including Stattmayer (8), who reported two cases of acne rosacea, one of which was of a severe type and associated with acne vulgaris. Whole testicular extract was used by mouth in the latter case, and although other methods had failed to relieve the condition, marked improvement was apparent within a month and the skin condition cleared up entirely in another two months.

Table 1. General Symptoms Associated With the Male Climacteric and Prostatism

1. Impotence, or decreased libido.
2. Nervous exhaustion.
3. Irritability.
4. Anemia. Prostatic hypertrophy is found in forty percent of men over the age of fifty with anemia.
5. Hot flashes.
6. Nocturnal diaphoresis.
7. Indecision.
8. Fatigue.
9. Skin lesions.
10. Melancholia.
11. Mental depression.

Table 2. Local Symptoms Associated With the Male Climacteric and Prostatism

1. Bachache.
2. Leg pain.
3. Joint stiffness.
4. Enlarged, tender prostate.
5. Urgency.
6. Pyuria.
7. Enlarged inguinal lymph nodes.
8. Dribbling.
9. Frequency (especially nycturia.)
10. Headache.
11. Sluggish activity of spermatozoa (due to alternation in character of prostatic fluid.)
12. Edema of ankles.
13. Retention.
14. Residual urine.

Summary

In a series of thirty-nine cases treated principally with testicular and prostatic extracts both intramuscularly and orally, the efficacy of these preparations has been demonstrated in controlling the symptoms of prostatism and the local manifestations of disordered prostatic function. A case of acne vulgaris is reported which responded to whole testicular extract and the frequent value of socalled "crossed therapy" is evidenced in the report on the repeatedly successful application of testicular-prostatic extract by mouth in the case of an elderly female patient with involvement of the urinary tract.

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30 NORTH MICHIGAN AVENUE.

DIAGNOSIS AND TREATMENT OF HUMAN STERILITY*

MAX HUHNER
New York, N. Y.

Diagnosis of Sterility in the Male

A condom or jar examination of the semen ejaculated by the male is absolutely necessary in every case of sterility before treating the female. In a normal specimen we should at once see innumerable spermatozoa dashing about very rapidly hither and thither. When we have to search for spermatozoa, the specimen is abnormal.

We must also remember that the presence of dead spermatozoa in a specimen tells us that there is no obstruction either in the epididymis or vas. To perform epididymovasostomy in a case of sterility, when dead spermatozoa are found in the specimen, is absolutely contraindicated, and still it has been done.

But our diagnosis is not completed by merely examining a condom or a jar specimen. The male may still be at fault in a sterility case even though live spermatozoa in sufficient numbers are present in the specimen. It is important that he be able to ejaculate his semen with sufficient force to reach the cervical os of the female. In certain forms of impotence, he may not be able to do this and thus be responsible for the sterility.

In cases of azoöspermia (no spermatozoa), we must determine definitely, for purposes of treatment, whether the testicles themselves do not manufacture spermatozoa; whether they do, but the tubes leading from the testicles to the urethra are occluded; or whether both conditions coexist.

Before I brought out my original investigations on aspiration of the testicles, the differential diagnosis of the conditions just mentioned was merely guess-work. In 1913, I published my book on sterility, in which I called attention to aspiration of the testicles as a diagnostic procedure. I was the first to call attention to this method as a diagnostic procedure.

The technique of aspiration is very simple. A small area of the skin of the scrotum is painted with iodine, the testicle is held firmly against the skin, and a rather large bore sterile needle, attached to an ordinary hypodermic syringe, is plunged through the skin into the body of the testicle and epididymis. Aspiration is immediately commenced and kept up while the needle is being slowly withdrawn. A small amount of collodion is poured over the puncture, and this completes the entire operation.

The number of spermatozoa found are very few. Sometimes they exhibit motion, but rarely the very active motion seen in a condom specimen. If, therefore, spermatozoa are found in the aspirated fluid in cases of azoöspermia, we can definitely conclude that the condition is due to double occlusion of the vasa or epididymides, and operation is distinctly indicated. If, however, aspirations never yield any spermatozoa, no operation should be undertaken, no matter how many nodules are found in the epididymides.

Aspermia (no seminal discharge) may be due to a tight urethral stricture, to the presence of bands in the neighborhood of the ejaculatory ducts in the prostatic urethra, or to a paralysis or inhibition of the ejaculatory center in the spinal cord. In this latter condition, which is very rare, the patient has normal libido and normal erection, but try as hard as he may, he does not have an ejaculation. In some of these cases, the patient may be able to masturbate and bring semen out of the meatus, which may contain live spermatozoa. In other cases, the patient may have nocturnal pollutions containing spermatozoa, while in still others, fluid may be brought out by massaging the prostate and stripping the seminal vesicles, which will also contain live spermatozoa, but during coitus there is no ejaculation. In some cases, spermatozoa will be found in the urine after coitus.

Treatment

In those cases where the diagnosis shows that the spermatogenic function of the testicles is at fault, endocrine treatment may at times bring about remarkable results. The internal administration of extract of the anterior lobe of pituitary, starting with two five grain tablets four times a day and rapidly increasing until the patient takes four tablets four times a day, that is, eighty grains for a period of six months, I have found to be most efficacious.

In cases of azoöspermia in which careful diagnosis shows that the condition is due to occlusion of the tubes, epididymovasostomy is the only possible solution.

Sterility, due to impotence in the male, should be treated by the method described in my book and my various articles. Tight strictures, as well as epispadias and hypospadias and other organic conditions, should be relieved by well known surgical procedures. In cases of epispadias and hypospadias, the operation should not be recommended for sterility until a Huhner test shows that no spermatozoa reach the cervix, for very often in spite of these handicaps, especially if coitus is practiced in the lateral or reverse position, spermatozoa may reach the cervix.

Sterility in the Female

In order that conception may take place, it is necessary for the spermatozoa of the male to enter the uterus and travel through it into one of the fallopian tubes

*Paper read by invitation before the North Bronx Medical Society, April 9, 1942.

and meet the ovum of the female, and the impregnated ovum must descend into the uterus and we find the uterine endometrium properly prepared to nest and nourish the developing fetus. This is the ordinary course of events and any obstacle to any of these events may prevent conception.

Diagnosis of Sterility in the Female

It is now almost thirty years since I began a serious and intensive study of sterility. I was so disappointed with the haphazard method of diagnosis and treatment of sterility in both sexes at that time, that I determined to work out a method whereby a fairly exact diagnosis could be made on a purely rational scientific basis.

In order to develop my method, it was first necessary to determine the normal behavior of spermatozoa ejaculated into the wife's genitals. For a period of over six years I made observations on this point in hundreds of cases, carefully examining the female at various periods after coitus and in various normal and pathological conditions. At the end of that time, I had collected a mass of data together with other facts on the subject of sterility, which I finally published in book form under the title of *Sterility in the Male and Female and its Treatment*. This was the first series of investigations ever made on a large scale and in a systematic manner of the behavior of spermatozoa in the female genitals.

As a result of these studies of the behavior of spermatozoa in the female genitals at various periods after ejaculation in normal and pathological conditions, I brought out a test for sterility, which I called in my book, the cervix test, and later elaborated in a special article calling it the spermatozoa test. This test was taken up by other writers, notably by Reynolds, who, in 1915, in an address on sterility delivered before the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association in San Francisco, devoted considerable space to a description of what he called the Huhner test, by which name it is now universally known both here and abroad, notably in England.

The patient is ordered to come to the office as soon after coitus as possible, and, of course, instructed not to take a douche. She is placed in the ordinary gynecological position, a bivalve speculum is inserted, and the cervix brought into view. The pipette is applied to the cervical os, some of the cervical contents sucked up and immediately placed on a slide, covered with a coverglass, and examined. Very often we at once see numerous lively spermatozoa, yet what a wealth of information is obtained from this few minutes' examination. What do we care whether the cervix is in its normal position or not, or whether we could reason out theoretically that the penis during coitus goes into this cul-de-sac or that, whether the vagina is very short or of excessive width or length—the living spermatozoa on the cervix tell us at once, that for that particular penis the cervix is in the right position to catch the semen. Again, we do not care if the woman tells us that all her husband's semen runs out of her vagina immediately after coitus, and that is why she does not become pregnant, for we have positive proof before us that, no matter how much runs out, enough spermatozoa have reached the cervix for purposes of impregnation. Likewise, we need not worry about the possibility of the cervical or vaginal secretions being inimical to the vitality or the spermatozoa, for we again know that they cannot be the cause of the sterility in this particular case. And so one may go through many of the theoretical questions in the etiology of sterility and see how frequently they are dismissed as the results of this few minutes' examination.

Suppose, however, that only dead spermatozoa are found in the cervix. We then examine a jar specimen, and if they are found dead in the jar, we know the fault is with the husband; if live ones, however, are found in the jar, we decide at once that something in the genital secretions of the female has killed the spermatozoa.

If no spermatozoa at all are found in the cervix, the husband may still be at fault, even though *live* spermatozoa are found in the condom. This is again one of the most important and practical features of the test. Ordinarily, a normal condom specimen was considered absolute proof that the husband was not responsible for the sterility. Yet the husband might be suffering from a tight urethral stricture, in which case, at times, no semen is ejaculated from the penis, but it remains behind the stricture to flow out when the organ has resumed its flaccid condition, a condom specimen showing absolutely normal semen. Or again, the husband may be suffering from rapid or premature ejaculation or may have a hypospadias or epispadias, in which latter condition the semen is directed away from the cervical os or even away from the vagina during coitus, and still the condom specimen will show nothing abnormal.

But the diagnostic value of the Huhner test is not limited to the cervix. We may look for spermatozoa as high up as the uterine fundus. After making many experiments and observations, I have found that the spermatozoa deposited low down in the female genitals, that is, in the vagina and cervix, die within a few days. If, therefore, we find no or only dead spermatozoa in the cervix, then insert our syringe into the fundus and recover live spermatozoa, we may be reasonably sure that the latter actually came from the fundus. Of course, the later after coitus such examinations are made, the harder it is to find spermatozoa, but if found, we are more certain that they come from the fundus.

But if a positive finding is obtained, we again receive valuable information. How many women have been operated upon because an anteflexion was supposed to interfere mechanically with the ascent of the spermatozoa into the fundus and tubes! Likewise we are informed that the uterine endometrium is not inimical to the vitality of the spermatozoa.

The diagnosis of those cases in which the spermatozoa are prevented from progressing in the tubes to meet the ovum is of supreme importance. In 1920, Dr. I. C. Rubin, of New York, brought out his epoch-making test by which the diagnosis could be established without operation. By merely insufflating the tubes through the uterus with gas and noting the pressure on a manometer, in combination with an x ray examination which showed the presence of the gas in the free abdominal cavity, we can definitely determine whether the tubes are patent or not. I shall not describe the Rubin test as it would take too long and, moreover, can be found in any modern textbook.

The diagnosis of cases of sterility in the female in

which the cause appears to be ovarian in origin is important and interesting. In many cases such diagnosis can be made by exclusion, for we must remember that while we can palpate an enlarged or misplaced ovary, there is no method by which we can palpate or diagnose an atrophic ovary.

As a rough guide, which is not scientific but practical, we may say that if the female had started her menstrual life at about the time normal for her race; and if the periods have come on at regular monthly intervals, have lasted the average normal number of days, and the amount of blood lost has been about the normal average; and if she is endowed with normal sexual passion and normal secondary sexual characteristics, the probabilities are that her ovaries are working properly. If, on the other hand, she started her menstrual life late, and her periods are scanty and come at long and infrequent intervals, we may guess, in the absence of other complications, that the sterility is of ovarian origin. In many of these cases we will also find a small underdeveloped or infantile uterus. Endometrial biopsy will give us a certain amount of information concerning the endocrine condition of the ovaries, but we cannot rely entirely on such information.

The diagnosis of the causes which prevent proper nidation of the fecundated ovum or its proper development and growth in the uterus can in many cases be determined by the ordinary gynecological examination. In such cases, we may find a small, generally anteflexed uterus, with a markedly large cervix entirely out of proportion to the rest of the uterus. One gets the impression that almost the entire uterus is made up of cervix. In other cases, the entire uterus, cervix and all, is very small. With such a condition there is often a history of delayed and infrequent menstruation.

Treatment of Cases in Which the Spermatozoa Are Prevented from Entering the Vagina

The mere mention of the etiological factors will at once suggest the proper treatment. Marked impotence in the male should receive the proper treatment for the condition. A rigid hymen should be aseptically ruptured or excised. Vaginismus and dyspareunia should receive the appropriate treatment. In cases of absence of vagina it should first be determined by careful examination, under ether if necessary, and in doubtful cases even by laparotomy, whether the patient is male or female, whether there are present ovaries, uterus and tubes, or testicles, vasa and prostate.

Treatment of Cases in Which the Spermatozoa Are Prevented from Reaching the Cervix, Fundus or Fallopian Tubes

This forms by far the greatest and most important group of cases. It is in these cases that absolute diagnosis can be made only with the Huhner test. Where no spermatozoa at all are found on the cervix, the condition of the husband must be investigated even though a condom specimen is found to be absolutely normal. He should be investigated for hypospadias, or other penile malformations, and it should also be determined whether he is partially or totally impotent.

It is in the cervix, however, that the most interesting conditions are found. At times, with the Huhner test, we find the cervix swarming with spermatozoa, but all dead, and at other times we find live spermatozoa in the cervical mucus, but stuck in the plug of cervical mucus and making frantic efforts to extricate themselves. Both of these conditions indicate a pathological condition of the cervical secretions. The main indication for treatment in these conditions is to change the cervical secretions and bring them back to normal.

In the treatment of this condition, I have found nothing so effective as the application of the negative galvanic electrode to the entire cervix, the positive pole being connected with an abdominal pad electrode.

The treatments are given every four or five days, except during the menstrual periods. They do not in any way interfere with the patient's ordinary occupation or mode of living or her sexual relations. After two months, they are discontinued for about a month to give the patient a chance to become pregnant. If she does not, they may be resumed for another month.

Finally as a radical measure, and this constitutes the minority of cases, where the discharge has not been relieved by the foregoing measures we may employ the Sturmdorf operation, as the most rational for the condition. A new and simpler method of treatment was recently introduced to replace the Sturmdorf operation, which uses the actual cautery to burn out portions of the endometrium.

In the common cases of sterility due to occlusion in the tubes, before resorting to operation therapeutic insufflation may be tried. In performing the Rubin test for diagnosis, it was noticed that in a certain number of these cases the patients become pregnant after the test has been made. However, when the above mild procedure is ineffective, and the desire for children is very urgent, the only alternative is salpingostomy.

Treatment of Cases in Which the Ova Either Do Not Develop or Are Prevented from Leaving the Ovary

The lack of development of the ova is generally due to an endocrine condition. As before said, the diagnosis in many cases can only be made by exclusion, while in some there are evident signs of general endocrine disturbances and particularly in the genital organs as evinced by a small infantile uterus and delayed, scanty and infrequent menstruation. Endometrial biopsy may help in the diagnosis. For the confirmed cases much can be done by proper treatment. If it can be demonstrated that the thyroid or pituitary glands are at fault, extracts of these glands can be given.

The treatment of the truly undeveloped or infantile uterus is much more difficult and involved. It is generally an endocrine condition, and goes hand in hand with an undeveloped ovarian function. The treatment is exactly the same as that described in connection with the ovarian condition. The prophylactic treatment is also of importance. Besides the endocrine treatment, much can be done to redevelop the uterus by electrical measures. The technique is somewhat similar to that described when discussing the changing of the cervical secretions by galvanism.

In very mild cases, the use of hot water, either in the form of prolonged hot douches, or in a rubber bag inserted into the vagina, may help to develop the uterus by the causation of local congestion, thus increasing the blood supply of the parts.

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A NEW AND INEXPENSIVE APPARATUS FOR THE RAPID ESTIMATION OF THE ICTERUS INDEX BY MEANS OF A GRADUATED COLOR SCALE*

No Standard Required

SAMUEL WEISS**
New York, N. Y.

Since the estimation of bile pigment in the blood and its clinical application by various investigators was first introduced, many methods have been advocated for determining the icterus index. Bernheim and Stetten developed the colorimetric method for estimating quantitatively the amount of bile pigment in the blood serum by means of which the icterus is determined. This is probably the most useful single functional liver test for general clinical work.

Later, a simpler method, the use of one cc. of blood serum, a standard solution of potassium dichromate (1:10,000), and normal saline for diluting the serum was advocated. The latter was an advance over the time consuming and colorimetric method.

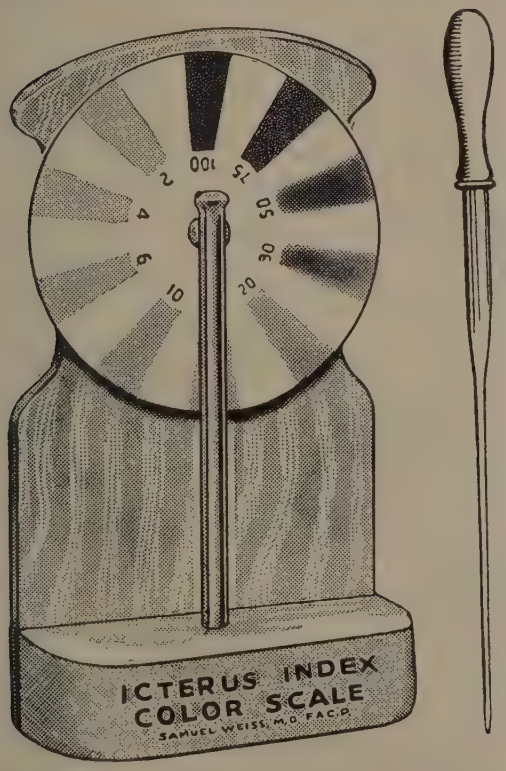

FIG. 1.—New and simplified color chart for the estimation of the icterus index.

With this new and simplified color chart one may estimate the icterus index within one or two points. It is inexpensive, may be used at the bedside or at the office.

It has been carefully compared with an electric colorimeter (Leitz-Mass) and also has been found accurate as compared with the older colorimeters.

*Presented before the Hahnemann Medical College, Philadelphia, Pa., May 7, 1942.

**With the assistance of Helen R. Weinberg, B.A.

Method

To estimate the icterus index, two and a half to five cc. of blood is drawn, allowed to stand until clot forms and supernatant serum is clear (when available use centrifuge); then pipette clear serum into tube and compare with color chart (no standard or solution needed).

The following interpretation of the icterus index found in various conditions will be a useful guide:

The normal icterus index ranges between four and six. However, we may find readings as low as two and as high as sixteen without apparent signs of disease.

When the icterus index is above sixteen, usually there is bile in the urine and yellowish discoloration of the sclera and skin. In some patients it is difficult to detect these changes because the patient may be dark skinned.

Certain types of anemia, such as the hypochromic, especially those due to hemorrhage or malignancy, show a lower icterus index. In cardiac insufficiency with passive congestion of the bile ducts there is an increase in the icterus index. Addison's and other hemolytic anemias in the active stages give icterus index values greater than normal, although the urine contains no bile. Hemorrhage will reduce the icterus index values.

Catarrhal jaundice due to cholangitis following gastrointestinal catarrh or a toxic necrosis of the liver resulting in rupture of the small intrahepatic bile canals, the icterus index may reach 100 or more. Leucopenia, two thousand to four thousand leucocytes, is a characteristic finding in this type of jaundice and the icterus index decreases rapidly as improvement takes place.

Carotenemia as a cause of yellow discoloration of the sclera and skin may show a moderate increase in the icterus index, five to ten points, but returns to normal in twelve hours.

Oranges, squash, carrots, pumpkin, spinach, greens of all sorts and egg yolk, contain small amounts of carotin and the icterus increase may rise one to five units.

In differentiating carotinemia, the history and findings may be of help. The diffuse yellow pigmentation on the palms of the hands and the soles of the feet, together with absence of pigmentation of the sclera, serve to distinguish it from real jaundice in which the icterus index divided by six gives approximately the milligrams of the bilirubin per one hundred cc. of blood. Diabetics often show a definite xanthema, mainly due to carotin.

It is also useful in recognizing early liver changes during administration of sulfa drugs.

Icterus Index

Normal: 4 to 6
Latent icterus: 8 to 16
Secondary anemia: 2 to 4

Pneumonia and septic infections: 4 to 15 (above 10 in bad cases)
Chronic heart failure: 4 to 15 (in passive congestion of the liver above 6)
Diseases of the biliary system:
Gallstones: 4 to 6 (normal)
Cholecystitis: 8 to 16
Occlusion and cholangitis of the common bile duct: 30 to 150
Other diseases:
Arsenical hepatitis from treatment of syphilis: 10 to 150
Gastric ulcer, rheumatic fever, syphilis, tuberculosis: 4 to 6
Duodenal ulcer: 6 to 14
Diabetes: 8 to 15

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Traumatic Heart Disease

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SIXTY-SEVEN EAST FIFTY-NINTH STREET

Correction.—In the September issue of the MEDICAL RECORD an error occurred in the article on The Stethogram in Practice, by Dr. Max Pomerance and Dr. Simon Frucht. The illustrations for Figures 1 and 4, pages 446 and 447, were interchanged; the legends, however, were correct as printed. We regret the error.

News Items

American College of Surgeons Cancels Meeting.—The annual Clinical Congress of the American College of Surgeons, which was scheduled to be held in Cleveland, November 17th to 20th, was cancelled by the board of regents of the college at a meeting held in Chicago, October 14th, according to *J.A.M.A.*

Lectures to the Laity.—The first lecture in the eighth series of Lectures to the Laity will be delivered at the New York Academy of Medicine on Thursday evening, November 12th, by R. R. Williams, Sc.D., chemical director, Bell Telephone Laboratories. The subject will be "Nature and the Man."

First Harvey Lecture.—The first Harvey Society lecture of the current series was delivered at the New York Academy of Medicine on Thursday evening, October 29th, by Dr. Vincent Du Vigneaud, professor of biochemistry, Cornell University Medical College. His subject was the "Significance of the Labile Methyl Groups in the Diet and Their Relation to Transmethylation."

National Foundation for Infantile Paralysis.—It is announced that the third annual medical meeting of the National Foundation for Infantile Paralysis will be held in New York, December 3d and 4th. The headquarters of the association is at 120 Broadway, New York, and its president is Basil O'Connor.

Women Physicians in "Waves" to Receive Commissions.—The Naval Department has announced that plans are under way to commission sixty women physicians in the "Waves" for service limited to continental United States. They will be commissioned as junior-grade lieutenants and will be under the jurisdiction of the Navy Medical Corps.

Symposium on Rectal Carcinoma.—At a clinical conference held on Wednesday, October 14th, at the New Amsterdam Hospital, New York, the program consisted of a symposium on rectal carcinoma. The following doctors participated in the discussion: Dr. Arthur A. Landsman, Dr. Frank C. Yeomans, Dr. George E. Binkley, of New York, and Dr. Homer I. Silvers, of Atlantic City, president-elect of the American Proctologic Society.

Dr. Christian Invited to Return to Active Duty.—Dr. Henry A. Christian, Hersey professor of the theory and practice of physic, emeritus, Harvard University Medical School, has been invited by the president and fellows of the university to return to active duty to give clinical instruction. He has also been appointed visiting physician at the Beth Israel Hospital, Boston.

The Salmon Lectures.—Dr. Emilio Mira, professor of psychiatry at the University of Buenos Aires, Argentina, will deliver the Salmon lecture for 1942, on November 6th, 13th, and 20th, at the New York Academy of Medicine. The general topic of these lectures is Psychiatry at War. The first lecture will deal with the psychopathology of fear and anger reactions in wartime; in the second lecture, the duties of the psychiatrist in wartime will be discussed, and in the third lecture new techniques will be described for detecting and controlling "fighting power" in individuals and armies.

A New Journal Devoted to Gastroenterology.—Announcement is made that the American Gastroenterological Association will publish on January 1, 1943, the first issue of a new journal to be called *Gastroenterology*. This new monthly journal will be owned by the Association and will be its official publication. It will be published by Williams and Wilkins Company, Baltimore, and the yearly subscription price will be $6.00. Dr. W. C. Alvarez, of the Mayo Clinic, will be the editor (after June 1943) and Dr. A. C. Ivy, assistant editor. The editorial board will consist of nineteen leading gastroenterologists.

Training Center for Kenny Treatment.—Dr. Don W. Gudakunst, medical director of the National Foundation for Infantile Paralysis, announces that a training center will be established in New York in December where doctors, nurses, and physiotherapists can learn the Kenny treatment for infantile paralysis. The center will be conducted under the auspices of the Greater New York Chapter of the Foundation. The staff will include Dr. Kristian G. Hansson, Dr. Richard Kovács, Dr. William Bernham Snow, and Dr. William Bierman.

New York Cardiological Society.—At the regular meeting of the New York Cardiological Society, held at the New York Academy of Medicine on November 4th, a symposium on digitalis was presented as follows: Standardization in animals, by Dr. Cary Eggleston; Standardization of humans, by Dr. Harry Gold; Pharmacology, dosage, the new unit, by Dr. Louis Hirschhorn, and Experimental and clinical experiences with digitalis-like drugs, by Dr. Bruno Kisch. The program also included demonstrations of misleading artefacts in electrocardiography, by Dr. Philip Reichert, and stethograms of carotid sounds and their diagnostic importance, by Dr. Franz M. Groedel. Dr. Walter Bensel is president of this society and Dr. Epaninonda Secondari is secretary.

Therapeutic Agents in Infections.—At a meeting held on Thursday evening, November 5th, at the New York Academy of Medicine, under the joint sponsorship of the New York Academy of Medicine and its Section of Medicine, the program consisted of a discussion of special therapeutic agents used in infections. Dr. René J. Dubos, of Harvard University, discussed Gramicidin. Dr. Chester S. Keefer, of the Boston University School of Medicine, discussed the Clinical application of gramicidin and penicillin, and Dr. Warfield M. Firor, visiting surgeon, Johns Hopkins Hospital, discussed sulfonamide therapy in diseases of the intestinal tract.

New Officers of Pennsylvania State Medical Society.—At the ninety-second annual meeting of the Medical Society of the State of Pennsylvania, held in Pittsburgh, October 5th to 8th, Dr. Robert L. Anderson, of Pittsburgh, was installed as president and the following officers were elected: President-elect, Dr. Augustus S. Kech, of Altoona; first vice-president, Dr. Gilson C. Engel, of Philadelphia; second vice-president, Dr. Burton C. Painter, of New Brighton; third vice-president, Dr. Charles V. Hogan, of Pottsville; fourth vice-president, Dr. John Foster, of New Castle; secretary, Dr. Walter F. Donaldson, of Pittsburgh; assistant secretary, Dr. Henry G. Munson, of Philadelphia; treasurer, Dr. John B. Lowman, of Johnstown.

Refresher Course in Cardiovascular Diseases.—A refresher lecture course in cardiovascular diseases will be given under the joint auspices of the New York Academy of Medicine and the New York Heart Association, Heart Committee of the New York Tuberculosis and Health Association. Dr. Herbert Chasis is the presiding officer. The first lecture was given on October 28th by Dr. Clarence E. de la Chapelle on the Management of the acute episode in coronary occlusion. The second lecture, to be given on November 25th by Dr. Robert L. Levy, will be on the Management of the patient who has recovered from acute coronary occlusion. Other lectures in the course are as follows: December 23rd: Management of hypertension, by Dr. William Goldring; January 27th: Management of cardiovascular syphilis, by Dr. Edwin P. Maynard, Jr.; February 24th: Managament of heart failure, by Dr. Harry Gold; March 24th: Management of peripheral vascular disease by Dr. Irving S. Wright; April 28th: Management of rheumatic fever, by Dr. Currier McEwen; May 26th: Management of cardiac arrythmias, by Dr. Arthur C. DeGraff.

Friday Afternoon Lectures.—The first lecture in the 1942-43 series of Friday Afternoon Lectures at the New York Academy of Medicine was delivered on November 6th by Dr. David P. Barr, professor of medicine, Cornell University Medical College, his subject being "Disorders of the Hypophysis from a Clinical Standpoint." Other lectures in the series to be delivered during the months of November and December are as follows:

November 13th: Some recent advances in therapeutics, including the newer drugs of the sulfonamide group, by Dr. Harry Gold, Cornell University Medical College.

November 20th: The surgical treatment of circulatory disorders in the lower extremities, including diabetic gangrene, by Dr. Gerald H. Pratt, New York Post-Graduate Medical School, Columbia University.

December 4th: The rôle of artificial insemination in the treatment of human sterility, by Dr. Alan F. Guttmacher, Johns Hopkins Medical College, Baltimore, Md.

December 11th: Virus pneumonia, by Dr. Hobart A. Reimann, Jefferson Medical College, Philadelphia.

December 18th: Peritonitis, conservative treatment, by Dr. Henry W. Cave, College of Physicians and Surgeons, Columbia University.

Columbia University Department of Nursing Affiliated with Hartford Retreat Neuropsychiatric Institute.—A professional affiliation between the Department of Nursing of the College of Physicians and Surgeons of Columbia University (Presbyterian Hospital School of Nursing in the city of New York) and the Neuropsychiatric Institute of the Hartford Retreat is announced jointly by Miss Margaret E. Conrad, professor and executive officer of the Department of Nursing of Columbia's College of Physicians and Surgeons, and Dr. C. Charles Burlingame, psychiatrist-in-chief of the Neuropsychiatric Institute. The affiliation has been approved by the Columbia University Council and the Board of Directors of the Institute. Under this affiliation, students with university degrees who are receiving advanced time credit in the Department of Nursing, College of Physicians and Surgeons of Columbia, will undertake an intensive two months' course in neuropsychiatric nursing at the Institute, under the direction of the Institute's medical and nursing staffs. The curriculum will include instruction in all branches of psychiatric nursing.

Morrisania City Hospital Honors Staff Members in Armed Forces.—A service plaque honoring the eighty members of the medical staff of Morrisania City Hospital, New York, now in the armed forces, was recently dedicated in the lobby of the hospital. Taking part in the exercises were the following speakers: Dr. J. Lewis Amster, president of the medical board; Dr. I. Harvey Schotter, secretary of the hospital alumni society, and Dr. Adam Eberle, general superintendent of New York City municipal hospitals, who accepted the service tablet on behalf of Dr. Edward M. Bernecker, commissioner of hospitals.

Personal.—Dr. George Baehr, chief medical officer, Office of Civilian Defense, is now in England where he went a few weeks ago to study Britain's Emergency Medical Service and confer with medical leaders.

Dr. Ward L. Mould of the Washington staff of the Medical Division, Office of Civilian Defense, has been appointed medical advisor to industrial plants.

Dr. W. Roderick Brown, of Pittsburgh, has been appointed to the staff of the Medical Division, Office of Civilian Defense, Washington, D. C., to supervise the training of negro physicians in Emergency Medical Service for Civilian Defense.

Dr. Karl Jefferson Thomson, associate director of the Metropolitan Life Insurance Company Sanatorium, Mt. McGregor, New York, has joined the Washington staff of the Medical Division of the Office of Civilian Defense.

Dr. Edward S. Rogers, of Albany N. Y., assistant health commissioner for medical administration, has been appointed director of the Office of War Nutrition Services of the New York State War Council.

Dr. Elise Depew Strang L'Esperance, associate commander of the Women's Field Army of the American Society for the Control of Cancer, has received the Clement Cleveland Medal, awarded annually "for outstanding contributions to cancer control work."

Public Health Nurses Needed

In a recent call issued to public health nurses, the United States Civil Service Commission omitted to state that the completion of a high school course was an essential educational requirement for public health nursing positions. Other requirements are: Completion, subsequent to January 1, 1920, of a full course in a recognized school of nursing including two years in a general hospital, having a daily average of fifty bed patients or more; registration as a graduate nurse; and completion of one year of study in public health nursing at a college giving a course of study approved by the National Organization for Public Health Nursing. One year of public health nursing experience is also necessary. The public health nurse positions pay $2,000 a year.

Other nursing opportunities open in the Federal service include the following: Junior public health nurse, $1,800 a year; graduate nurse, $1,800 a year; junior graduate nurse, $1,620; graduate nurse for the Panama Canal service, $168.75 a month; nursing education consultant, $2,600 to $4,600 a year; and public health nursing consultant, $2,600 to $5,600 a year. Except for Panama Canal service, there are no age limits for any of these positions. Applications will be accepted until the needs of the service have been met.

Book Reviews

Metabolism

Diseases of Metabolism. Detailed methods of diagnosis and treatment. A text for the practitioner. Edited by GARFIELD G. DUNCAN, M.D., chief of medical service "B", Pennsylvania Hospital; associate professor of medicine, Jefferson Medical College, Philadelphia, Pa. Contributors: Walter Bauer; Abraham Cantarow; Garfield George Duncan; Ferdinand Fetter; Cyril Norman Hugh Long; Louis Harry Newburgh; Tom D. Spies; Hugh R. Butt; Tracy Donald Cuttle; Frank Alexander Evans; Friedrich Klemperer; Edward Halton Mason; John Punnell Peters; Leandro Maués Tocantins; Abraham White. Fully illustrated, including seven plates in color. Philadelphia and London: W. B. Saunders Company, 1942. Pp. 985. Price $12.00.

During this generation the clinician and laboratory worker have been drawn closer together for the mutual benefit of each. This symbiosis stimulated research, especially in diseases of metabolism, embracing nutrition, endocrinology and hematology. Fundamental knowledge is, therefore, essential in the proper evaluation and management of metabolic disorders. The fundamentals are reviewed in this book and interpreted in the light of recent investigations. The authors have simplified their respective phases of the subject despite controversy and confusion. After a consideration of carbohydrate, protein, lipids, minerals and water, the metabolic aspects of systemic disorders are considered. Then follows discussion of blood diseases, avitaminoses, undernutrition, obesity, gout, hyperinsulinism, diabetes mellitus and diabetes insipidus. The book is charged with science translated into practical medicine. Its application not only enlightens the physician but helps the patient. Such a book raises the standard of modern medicine.

Neuroanatomy

Functional Neuroanatomy. By WENDELL J. S. KRIEG, Ph.D., assistant professor of anatomy, College of Medicine, New York University. With illustrations and decorations by the author. Philadelphia: The Blakiston Company, 1942. Pp. 553. Price $6.50.

The brain and spinal cord form the nervous system, the study of whose structures composes this new book, but the approach is different from the arrangement of the subject matter in other texts. It is more natural because it is functional. If one studies first the sensory and motor neurons of the cord and their internuncial neurons, he grasps the fundamental principle of neural architecture and function. On this can later be founded a superstructure of gradually increasing complexity. To follow the long tracts connecting the spinal cord with the brain is illogical at this time and hence better left until the functional system to which they belong is being traced. The primary neurons of the cranial nerves are an elaboration of the spinal nerves. Nature groups them by their functional components within the brain stem, hence they are best studied that way. Sensory systems are viewed next and following this the motor pathways. Having thus introduced the subject of the cerebrum it is natural to consider the special matter connected with it. Finally, the cerebellum having connection with all levels is taken up last of all parts of the cerebral spinal system. To add to this unique array of presenting the matter, the illustrations are correlated in such a way that the student will build

up a visual three-dimensional picture of each system. All in all, this remarkable book presents a dull, dry subject in a most intriguing manner. It reveals how the nervous system is constructed, how the parts are integrated, how they operate and how they become altered in disease. The presentation is crystal clear, the drawings three-dimensional, the sequence functional, the integration perfect, the book a gem. It should find a place in every physician's library if he wants to know what he is doing with diseases of the nervous system.

Thirty Years with Freud

From Thirty Years with Freud. By THEODOR REIK. Translated from the German. The International Psychoanalytical Library. No. 32. Edited by Ernest Jones, M.D. London: The Hogarth Press and The Institute of Psychoanalysis, 1942. Pp. 214. Price 12s. 6d.

Theodor Reik has written a book of memoirs based on his thirty years' relationship with Freud. It was imperative that Reik produce this book; few of Freud's followers were in a better position to reach Freud than Reik. He was one of the very few who remained constant, and did not go trotting off on his own pet hobby as did Jung and some of Freud's earlier followers.

It is apparent that Reik really knew Freud and did not look upon him as a competitor and antagonist. We have the feeling that Reik could have said a great deal more about Freud than is told in these two hundred odd pages. Nevertheless, he touches upon the salient concepts that were original with Freud and presents them in a clear-cut fashion.

There are a few of Freud's little known concepts brought out in this book. Among them is the publication for the first time of an unknown lecture which Freud delivered in 1913 in Vienna. It is a personal book and yet always the personalities are translated into concepts that deal with Freud's work which we may, for the want of a better name, call Science, although we will not oppose anyone who argues this point.

The most interesting part of the book from our point of view is the chapter that deals with Freud's attitude towards our present-day culture. The book is well written and not burdensome to read. We are sure that anyone interested in the field of psychopathology will derive keen enjoyment from Reik's book.

Nephritis

Nephritis. By LEOPOLD LICHTWITZ, M.D., chief of the medical division of the Montefiore Hospital; clinical professor of medicine, Columbia University, New York. New York: Grune & Stratton, 1942. Pp. 328. Price $5.50.

Lichtwitz has followed up his recent *Functional Pathology* with a very instructive and, despite its conciseness, thoroughly enlightening book on nephritis. Lichtwitz starts from the basic conviction that clinical medicine is a science in its own right and not an appendix either to pathological anatomy or to experimental physiology. He considers that the sole purpose of clinical medicine in action is to serve the patient, and consequently considers the chief objective of medical science is to develop clinical physiology as a foundation for diagnosis and treatment of individual cases.

The book is based on a wide experience in this particular field of medicine extending over a period of more than thirty years. The author is polite enough to make a bow to the support given by animal experiments—although a very slight one—but he is far from believing in the omnipotence of experimental research. He believes in the experience gained by the doctor from his observation at the patient's bedside. This does not exclude exact laboratory examination. On the contrary, his book explains a method of analyzing renal function and urinary excretory capacity in so simple a manner that it can readily be done by any physician and with a minimum of laboratory technique and equipment. It also explains how to prescribe an individually adequate diet with due regard for nitrogen and salt content, as well as for optimum fluid intake. There is no problem in kidney physiology and pathology, nephritis and nephrosis which has not been answered in the clearest way in this concise, timely, and authoritative book.

Plastic and Maxillofacial Surgery

Manual of Standard Practice of Plastic and Maxillofacial Surgery. Prepared and edited by the Subcommittee on Plastic and Maxillofacial Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council, and Representatives of the Medical Department, U. S. Army: Robert H. Ivy, chairman. With contributions by John Scudder and Frederick P. Haugen. Philadelphia and London: W. B. Saunders Company, 1942. Pp. 432. Price $5.00.

This is the first in a series of "manuals" prepared under the auspices of the Division of Medical Sciences of the National Research Council. Others to come "soon" will deal with ophthalmology and otolaryngology; abdominal and genitourinary injuries; orthopedic subjects; burns, shock, wound healing and vascular injuries; and neurosurgery and thoracic surgery. This set of books is based on the needs of medical men serving with the Army and Navy most of whom are not "specialists in the broad sense, and yet they must deal daily with special problems not ordinarily met with in civil practice". It goes without saying that all medical officers must familiarize themselves with the frequently changing principles of military surgery. War conditions move swiftly. Adequate medical care for Army personnel must move *pari passu*. In the Navy the only doctor on board may be faced with a crisis in mid-ocean—a crisis never faced by him before. He is entirely alone with the problem which he, of course, wishes to solve with the greatest good to his patient. He must consult the written word, hurriedly.

The handbooks in this group now in preparation aim to give in graphic form, briefly but comprehensively, all that one needs to know to bring about a successful issue of the matter at hand. However, in this volume there is contained much more than merely surgical first-aid. Reconstructive surgery demands time, much time. It must be performed as remote as possible from the action center. It is highly specialized and has been "written up" exhaustively since World War I. Its literature is enormous. Therefore, this present volume seems to go far beyond the exigencies of the moment. One might even wish that "emergencies" had been stressed rather than prostheses. What everyone must know is what *not* to do, or a remediable condition may be pushed over into a nonremediable or greatly prolonged one. There are "don't's" throughout this text wherever needed. We shall await the succeeding volumes with interest.

Medical Milestones

Samuel Bard, 1742-1821

One of the most important anniversaries of the year 1942 is the bicentenary of the birth of Samuel Bard, pioneer in American medicine. A number of events have celebrated this anniversary, among them the publication of the first biography of the great physician to appear in a century and a half—*Dr. Bard of Hyde Park,* by J. Brett Langstaff, with an introduction by Nicholas Murray Butler. Another interesting celebration was a gathering of notables at the famous gardens originally planted by Samuel Bard's grandfather at Hyde-Park-on-Hudson. A special exhibition called "Doctors of Old New York" was held at the New York Historical Society to commemorate the same bicentenary and to pay tribute to some of Dr. Bard's contemporaries.

Samuel Bard's ancestors were Huguenot refugees from France exiled under the provisions of the Revocation of the Edict of Nantes. Peter Bard, Samuel's grandfather, bought a home near Philadelphia. His son John was the friend and a personal physician of General Washington, and an intimate of Benjamin Franklin. John Bard was a familiar figure on the streets of New York in prerevolutionary days, for he never went anywhere on foot but always drove a small phaeton. In 1750 he and Peter Middleton gave the first anatomical demonstration in America before medical students at Hosack Hall. They dissected the body of a criminal.

Early Education and Training

John's son, Samuel, at the age of fourteen entered Kings College, now Columbia University Medical School. Later he studied at Edinburgh, graduating in 1765 and spending nearly a year in the London clinics before returning home. In London he met and became an intimate friend of William Hunter, Mackenzie and Fothergill. In 1766 he returned to New York City and set up a practice with his father. A short time later he, Jones, Middleton, Tennent and Clossy cooperated in organizing a faculty of medicine in connection with Kings College. In this institution Bard was to occupy for forty years the chair of the theory and practice of physic. In 1792 Kings College became Columbia College and Samuel Bard was made dean of the faculty and professor of medicine.

Medical Career and Contributions

Bard founded the first medical school in New York City, and was one of the moving forces in the establishment of the first hospital (New York Hospital). He served as the first president of the Medical and Agricultural Societies of Dutchess County, and was trustee and secretary of New York City's first library. In 1813 he was elected to the presidency of the College of Physicians and Surgeons.

Professionally, Samuel Bard was a general practitioner, with a bent for obstetrics, at that time a much neglected branch of medical practice. During the latter years of his life he lived on the ancestral estate at Hyde Park and was as greatly interested as his father and grandfather had been in the beautiful gardens, which David Hosack was to preserve in their original state until they became a national park.

During his life on this farm Bard wrote his *Compendium of the Theory and Practice of Midwifery* which a subtitle announced contained "practical instructions for the management of women during pregnancy, in labour and in child-bed." The book was intended as a manual for instructing the ignorant, untutored midwives of the day. The style of the volume is simple, clear and nontechnical and has been referred to by medical historians as "the midwives' book of the early Colonies." Published in 1807, it was the first book on obstetrics issued in America. At the same time Bard was writing *The Shepherds' Guide* for use by sheep raisers. Perhaps Bard's best known work was his *Essay on Diphtheria,* the disease being usually known at that time as angina suffocativa. This was published in 1771. Osler once referred to it as "an American classic of the first rank."

Other interesting activities of Samuel Bard include the planning and erection of Hyde Park's first church, which still stands. Soon after George Washington became President of the United States he became afflicted with anthrax which took the form of a painful and dangerous carbuncle of the thigh. Bard was called in to treat it and accomplished a final cure. Among his patients were Alexander Hamilton and other well known figures of the day residing in New York City, then the capital of the country.

Bard as Administrator and Teacher

It was not only as a physician and a writer on medical subjects that Samuel Bard was outstanding. His ability along administrative lines was shown when he promoted, established, organized and kept increasingly serviceable to the community New York's first hospital, and the city's first public library. Some of the early regulations of the New York Hospital, drawn up in 1793, make interesting reading. One was that no incurable cases were taken, "lunatics excepted." None could be admitted suffering from "Small Pox, Itch, or other Infectious Distempers until there are proper apartments for such patients." One bed at least was always to be reserved for accidents that required immediate relief. "No Cards, Dice or any other Games within the Hospital" were permitted. And all this organization work was carried on in the midst of a private practice that alone would have exhausted the energies and interests of a lesser personality. A colleague of Bard's, Ducachet, wrote: "Perhaps there never was a medical man in the City of New York so universally known, so much beloved and esteemed as a practitioner. Indeed, so astonishingly popular was Bard at one time that, notwithstanding the number of worthies who flourished contemporaneously in the same city, he was called to almost every person who was taken sick."

Samuel Bard was a devoted husband and father. He married soon after his return to this country from Edinburgh his lovely cousin, Mary Bard. They lived together a long, happy and useful life, both dying at a good old age and within one day of each other. Bard retired to the country for the purpose of being more with his family and relatives than city life made possible. He relegated his flourishing city practice to his friend, David Hosack. The Hyde Park estate had originally been a grant to the family from Edward

Hyde, Lord Cornbury, then Governor of New York. John Bard named his property in the Governor's honor, and from the estate the present day village derived its name.

Bard was a very religious man. The sudden death of three of his children made him seek even further consolation in faith, and the little church of St. James at Hyde Park was built as a memorial to these children. This is the church attended by the President of the United States, and of which he is now a senior warden. And so Samuel Bard seems almost to connect, in a spiritual way, the life and welfare of our first President and with those of our latest.

Medicoliterary Notes

Alcohol Explored is the title of a recent book by Howard W. Haggard and E. M. Jellinek which has the unusual distinction of treating a very controversial subject in an entirely unprejudiced manner. Effects of alcohol, both physiological and psychological, its food qualities, statistics about its use and those who use it, make up the volume—a very scientific approach, undoubtedly, but one which does not prevent the authors from employing a pleasing, informal style that makes the book entertaining and readable.

* * *

The Committee for National Morale has had compiled a book on *German Psychological Warfare* which has already gone into three editions, but has been sold for the most part to those interested professionally in public relations. This fourth edition is planned for consumption by the general public. The volume is edited by Ladislas Farago.

* * *

Another book of timely interest is *Gas Warfare* by Col. Alden H. Wiatt of the Chemical Warfare Service of the U. S. Army. The volume treats of gas as a chemical weapon, its use, and protection against it. It will probably be news to most of us to learn that four hundred years before the Christian era the Athenians used gas in their war against the Spartans. They saturated wood with pitch and sulphur and burned it under the walls of the city. During the Civil War a New Yorker wrote to the Secretary of War suggesting the use of chlorine gas in battle, with a sketch of a suitable projectile for carrying it to the enemy, but the letter was aparently ignored. Gas was used for the first time in modern warfare by the Germans after the battle of the Marne. "Only the ignorant need fear gas," writes Colonel Wiatt, for most casualties from gas are avoidable.

* * *

In the *New York Times Magazine,* August 30th, Anita Brenner discusses the subject of women in medicine. For some time a lively controversy has been going on as to whether or not women doctors shall be taken into the United States Army. The same kind of dispute took place long ago at the time of the Spanish-American War when it was considered that army work for nurses was too dangerous except in hospitals. It will be remembered that at that time Anna Caroline Maxwell, this country's most famous nurse, made a special appeal to President McKinley, which was finally granted and a corps of nurses established at Chickamauga Park and other soldier camps.

* * *

Insides Out is the pertinent title of a recent publication of Dodd, Mead and Company by the well known dramatic critic, John Mason Brown. Mr. Brown recently recovered from an operation in a New York hospital and his book describes some of his experiences. Al Hirshfeld has made the illustrations.

* * *

Among biographies of interest to physicians that are to be published this fall are *Alfred Nobel: Dynamite King, Architect of Peace,* by Herta A. Pauli (Fischer Publishing Corporation); *William McDougall, M.D., D.Sc., F.R.S.,* by A. M. Lewin Robinson (Duke University Press); *Castor Oil and Quinine: Once a Doctor, Always a Doctor,* the autobiography of Dr. George Wonson Vandergrift (E. P. Dutton); *Action against the Enemy Mind,* psychological warfare and how to defend ourselves against it, by Joseph Bornstein and Paul Milton (Bobbs-Merrill Company); *German Psychological Warfare* edited by Ladislas Fargo and other members of the Committee for National Morale (Putnam).

* * *

Working in the bedlam of the Ryan Aeronautical Company plant at San Diego, California, are two deaf mutes, the first employed at this war factory, according to a recent Associated Press dispatch. Hiring of the two hints at the possibility of organizing an entire department of deaf workers in parts of the plant where noise is greatest.

* * *

To the *New York Times Magazine* for September 13th Elizabeth R. Valentine contributes an interesting and informative article on "Our Nurses on the World's Fronts." Among those "fronts" have been—and still are—Bataan, Corregidor, Iceland, Ireland, India, Australia and Britain. "Just how and where is a military secret because the number of nurses sent to a given area is in direct ration to the number of troops stationed there," writes the author. "The peacetime Army Nurse Corps totals more than five thousand; in the last two years it has been increased by many more thousands, and today the Army and Navy combined are calling for about three thousand nurses a month."

* * *

In the same issue of the *Times Magazine is* a symposium on "What Is the Right Diet?" Those who discuss the question are E. V. McCollum, of the Department of Biochemistry of the School of Hygiene and Public Health of Johns Hopkins University; Dr. Victor G. Heiser, medical consultant to the National Association of Manufacturers; Dr. Norman Jolliffe, associate professor of medicine at the New York University College of Medicine, and Otto A. Bessey of the Division of Physiology and Nutrition of the Public Health Research Institute of the City of New York.

* * *

Announcement is made that the new 1942-1943 catalogue of technical books of the Chemical Publishing Company, 234 King street, Brooklyn, is now ready for distribution. Every important field of science has been covered—aviation, engineering, radio, electricity, mechanics, chemistry, formulas, military and naval sciences. Copies may be had upon request.

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NOVEMBER 1942

Medicolegal Notes

Examination Before Trial in Malpractice Actions

Although the rule is established in the First Department of the New York Appellate Division that an examination before trial will not ordinarily be granted in actions for tort, it was held Goodman vs. Stein, 26 N. Y. S. 2d 169, that where the plaintiff had employed the defendant, a plastic surgeon, to perform two operations on her breasts, which she alleged were negligently performed and resulted in permanent disfigurement, she should be allowed an examination before trial to require the defendant to testify concerning the manner in which the operations were performed while she was under general anesthetic.

The court has held such examinations proper in similar actions, including malpractice actions, where the plaintiff has been rendered unconscious by an accident, and in other cases where special circumstances existed.

The decision was by a court divided 3 to 2. The dissenting opinion, by Martin, P. J., read, in part: "We have sanctioned examinations before trial in some cases involving malpractice, but it has not been our intention to establish a rule that the showing of treatments of a plaintiff, while under anesthesia, is sufficient in itself to allow a general examination of a defendant. Having in mind the elements of the doctrine of *res ipsa loquitur*, present in many malpractice actions, it is not always material and necessary for a plaintiff in such an action to establish just what was done by the defendant."

Avoidance of Release made in Reliance on False Statements as to Nature and Extent of Injuries

When statements made by a claim agent, in an effort to compromise and settle a claim, as to what the doctor, employed by the one liable for personal injuries sustained by another, said concerning the claimant's physical condition, are corroborated by the doctor, the claimant has a right to rely upon them. Not so, however, when there is no such corroboration.

And "if an injured person signs a release relying on a false statement respecting the nature and extent of his injuries at the time of diagnosis, he is entitled to avoid the release. It is also generally held that the fact that the statements made by the releasee's physician as to the character of the releasor's injuries at the time of diagnosis are not intentionally false does not affect the right of the latter to avoid the release." This is the general rule as stated in 23 Ruling Case Law, page 392 and supported by the greater weight of authority. Felchlin vs. Kiel, St. Louis Court of Appeals, Mo., 160 S. W. 2d 463.

Advertising Practice Without Certificate

In a proceeding for advertising to be a practitioner of medicine in the branch of chiropractic before obtaining a certificate from the state medical board, it was held that evidence that the accused displayed a sign on the porch of his residence bearing his name followed by the letters "D.C.", that in his office there was a "regular clock sign" reading "Doctor is in; please be seated", and that upon being questioned, he stated that the two signs were all the advertising he was doing "right now", was sufficient to prove beyond a reasonable doubt that the accused not only intended to practice his profession of chiropractor but also that he was so engaged; and judgment of conviction was affirmed. State vs. Method, Ohio Court of Appeals, 42 N.E. 2d 1013.

Right to Autopsy in Compensation Cases

Under the South Carolina Workmen's Compensation Act, the employer's insurance carrier, as in right of the employer, has, it is held, a right to an autopsy where it is alleged that the employee died of a heart attack and without an intervening accident. The statute provides that the employer "may require" an autopsy. This provision is held unequivocally mandatory and therefore binding upon the court. There are no provisions relating to notice, consent or objections. The statute also specifically provides that the right "shall be at the expense of the party requesting the same" without provisions as to hearing, procedure, order or other formality, by or before any body, whether judicial or grasijudicial. Cases in other jurisdictions were not considered, mainly because they relate to the statutes of other states which are different, or where there is similarity, different facts prevailed. Simpkins vs. Lumbermen's Mutual Casualty Co., South Carolina Supreme Court, 20 S. E. 2d 733.